SANYO

FILE NO.

SERVICE MANUAL

Remote Control Digital Color Television

HT28745 (U.S.A.) (CANADA)

ORIGINAL VERSION

Chassis No. 28745-00

NOTE: Match the Chassis No. on the unit's back cover with the Chassis No. in the Service Manual.

If the Original Version Service Manual Chassis No. does not match the unit's, additional Service Literature is required. You **must** refer to "Notices" to the Original Service Manual prior to servicing the unit.

Servicing should be performed by only trained and qualified service personnel.

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Specifications

Power Rating 120V, 60Hz
140W (Avg), 2.5A (Max)
Antenna Input Impedance 75Ω
UHF/VHF/CATV
Digital
Receiving Channel . . . . . 2 - 13 (VHF),
14 - 69 (UHF),
01, 14 - 94, 95 - 125 (CATV)
1 - 99 (Digital)
Remote Ready . . . . . 32 Key Remote Control
Sound Output . . . . . 5.0 W/CH
Intermediate Frequency
Picture IF Carrier 45.75MHz
Sound IF Carrier 41.25MHz
Color Sub Carrier 42.17MHz
Picture Tube W70ELC011X221
Semiconductors
Integrated Circuits 30
Transistors 57
Except within Tuners, RC Pre-Amp. & Digital Module
Cabinet Dimensions
Width . . . . . 858 mm
Height . . . . . 543 mm
Depth . . . . . 538 mm

HT28745, H3JAM, PRODUCT CODE 111375980

REFERENCE No. SM780106

SAFETY INSTRUCTIONS

SAFETY PRECAUTIONS

WARNING: The chassis of this receiver has a floating ground with the potential of one half the AC line voltage in respect to earth ground. Service should not be attempted by anyone not familiar with the precautions necessary when working on this type of equipment.

The following precautions must be observed:

1. An isolation transformer must be connected in the power line between the receiver and the AC line before any service is performed on the receiver.

2. Comply with all caution and safety-related notes provided on the side of the cabinet, inside the cabinet, on the chassis, and the picture tube.

3. When replacing a chassis in the cabinet, always be certain that all the protective devices are installed properly, such as control knobs, adjustment covers, shields and barriers.

4. Before replacing the back cover of the set, thoroughly inspect the inside of the cabinet to see that no stray parts or tools have been left inside.

Before returning any television to the customer, the service technician must perform the following safety checks to be sure that the unit is completely safe to operate without danger of electrical shock.

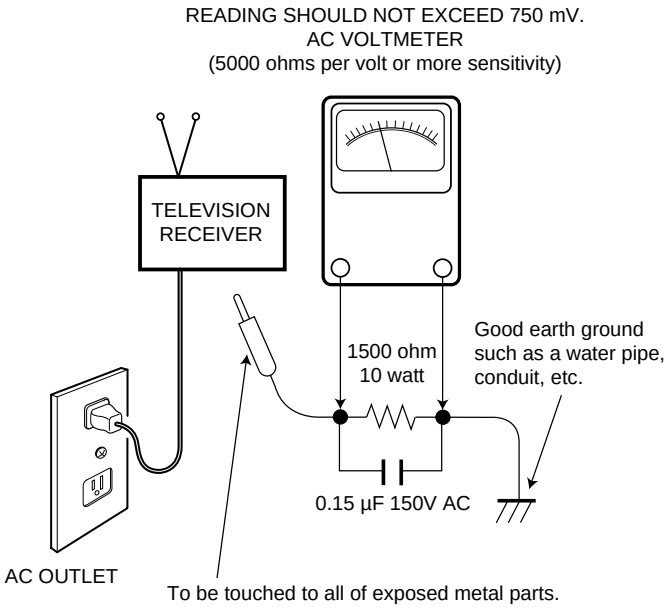
ANTENNA COLD CHECK

Remove AC plug from the 120 VAC outlet and place a jumper across the two blades. Connect one lead of an ohmmeter to the jumpered AC plug, and touch the other lead to each exposed antenna terminal (UHF and VHF antenna terminals). The resistance must measure between 1M ohm and 5.2M ohm. Any resistance value below or above this range indicates an abnormality which requires corrective action.

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120 VAC outlet. (Do not use an isolation transformer for this check.) Use an AC voltmeter, that has 5000 ohms per volt or more sensitivity. Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 µF 150 VAC capacitor, between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of the cabinet (antennas, handle bracket, metal cabinet, screw heads, metal overlays, control shafts, etc.). Measure the AC voltage across the 1500 ohm resistor. The AC voltage should not exceed 750 mV. A reading exceeding 750 mV indicates that a dangerous potential exists. The fault must be located and corrected. Repeat the above test with the receiver power plug reversed.

NEVER RETURN A RECEIVER TO THE CUSTOMER WITHOUT TAKING THE NECESSARY CORRECTIVE ACTION.


READING SHOULD NOT EXCEED 750 mV.
AC VOLTMETER
(5000 ohms per volt or more sensitivity)
TELEVISION RECEIVER
1500 ohm 10 watt
Good earth ground such as a water pipe, conduit, etc.
0.15 µF 150V AC
AC OUTLET
To be touched to all of exposed metal parts.
Voltmeter Hook-up for Leakage Current Check.

X-RADIATION PRECAUTION

The primary source of X-RADIATION in solid-state receivers is the picture tube. The picture tube is specially constructed to limit X-Ray emission. For continued X-RADIATION protection, the replacement tube must be the same type as the original (including the suffix letter in the part numbers). Excessive high voltage may produce potentially hazardous X-RADIATION. To avoid such hazards, the high voltage must be maintained within specific limits. Refer to the X-RADIATION WARNING NOTE on the CHASSIS SCHEMATIC in this service manual for specific high voltage limits. If the high voltage exceeds specified limits, check the components specified on the chassis schematic diagram and take the necessary corrective action. Carefully follow the instructions for the +B Voltage Check and the High Voltage Check to maintain the high voltage within the specified limits.

HIGH VOLTAGE HOLD-DOWN TEST

To prevent X-RADIATION from the picture tube due to excessive high voltage, a HOLD-DOWN circuit is provided in the high voltage circuit. Every time the receiver is serviced, the high voltage HOLD-DOWN circuit must be tested for proper operation. Refer to the HIGH VOLTAGE HOLD-DOWN TEST in service adjustments.

PRODUCT SAFETY NOTICE

When replacing components in a receiver, always keep in mind the necessary product safety precautions. Pay special attention to the replacement of components marked with a star (★) in the parts list and in the schematic diagrams. To ensure safe product operation, it is necessary to replace those components with the exact same PARTS.

SERVICE ADJUSTMENTS

GENERAL

This set has an On-screen Service Menu system included in the CPU that allows remote operation for most of the service adjustments.

ON-SCREEN SERVICE MENU SYSTEM

1. **Enter the Service Menu:**
   - While pressing the – VOLUME key on the front control panel, reconnect the AC power cord. The Service Menu Display will now appear. The remote can now be used to make adjustments. See Figure 1.
2. **Service Adjustments:**
   - Press the **Channel** ▲ or ▼ key to select the desired service menu you want to adjust. See page 5 for On-screen Service Menu.
   - Use the **Volume** + or – key or numeric keys to adjust the data. (For Sub - Address see below)
3. **Exit from the Service Menu:**
   - Press the MENU key to turn off the Service Menu display.

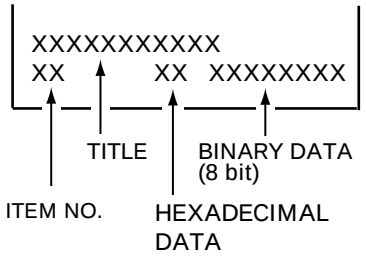


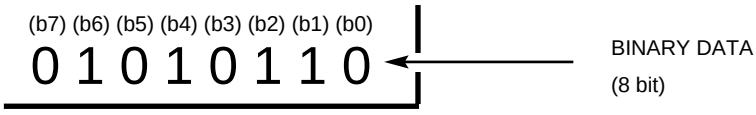
Figure 1. Service Menu Display

ADJUSTMENT FOR SUB ITEM (ADDRESS)

Some service data have Sub - Addresses. Use the numeric keys (from 0 to 7), to adjust the Sub - item data.

ADJUST DATA OF SUB-TITLE

1. Find the title and its bit of binary data from Table 1 (On-Screen Service Menu).



2. Enter the service menu (see above) and select the item number needed with the Channel ▲ or ▼ key.
3. With the numeric key (from 0 to 7), change the bit data. Each time the numeric key is pressed, the data changes from 0 to 1 alternately. For example, to change the data of bit 5, press the "5" key.

NOTE: The ▲ and ▼ symbols used in the following service adjustments refer to the **Channel up and down keys** not the Menu keys.

IC802 (EEPROM) REPLACEMENT

When IC802 (EEPROM) is replaced, IC801 (CPU) will automatically write the initial reference data into IC802 for basic TV operation. However, the bus data should be checked and some bus data should be set up before attempting the service adjustments. (See Table 1. on pages 5 – 13 for detailed bus data information.)

INITIAL BUS DATA SETUP

Note: When IC802 (EEPROM) is replaced, change the following initial reference data for proper TV operation before attempting service adjustments.

1. Disconnect the AC power cord (AC 120V line).
2. While pressing the MENU key, reconnect the AC power cord. The Service Menu display will now appear.
3. Select NO. 102 SHU2PO (Sub Hue / Pre/Over Shoot) with ▲ or ▼ key. Adjust the data with number keys for 37.
4. Select NO. 103 SLC2CTI (Sub Color / CTI Level) with ▲ or ▼ key. Adjust the data with number keys for 29.
5. Select NO. 105 SSH2LTI (Sub Sharp / LTI Level) with ▲ or ▼ key. Adjust the data with number keys for 61.
6. Select NO. 109 SBR2GAM (Sub Bright / Gamma) with ▲ or ▼ key. Adjust the data with number keys for 32.
7. Select NO. 10A RCT2LTIM1 (R Cutoff / LTI Mode) with ▲ or ▼ key. Adjust the data with number keys for 84.
8. Select NO. 10B GCT2DPL (G Cutoff / DPic Lev) with ▲ or ▼ key. Adjust the data with number keys for 4D.
9. Select NO. 10C BCT2DCT (B Cutoff / DC Tran) with ▲ or ▼ key. Adjust the data with number keys for 8D.
10. Select NO. 10F CBOF2AW1AB (CB Offset / Aging W / Aging B) with ▲ or ▼ key. Adjust the data with number keys for 9C.

SERVICE ADJUSTMENTS (Cont.)

INITIAL BUS DATA SETUP (Cont.)

11. Select NO. 110 CROF2SYS (CR Offset / System) with ▲ or ▼ key. Adjust the data with number keys for AC.
12. Select NO. 111 YOF4VD2VF (Y Offset / VM Dly VM F0) with ▲ or ▼ key. Adjust the data with number keys for 0E.
13. Select NO. 118 VLI4SCR (V Lin / S Correction) with ▲ or ▼ key. Adjust the data with number keys for 72.
14 Select NO. 119 HSI2UUC (H Size / Up UCP) with ▲ or ▼ key. Adjust the data with number keys for AC.
15. Select NO. 11A PAP2LUP (Pin Amp / Lo UCP) with ▲ or ▼ key. Adjust the data with number keys for 5C.
16. Select NO. 11B UCP 2UUG (Up CPin / Up UCG) with ▲ or ▼ key. Adjust the data with number keys for 80.
17. Select NO. 11C LCP2LUG (Up CPin / Lo UCG) with ▲ or ▼ key. Adjust the data with number keys 70.
18. Select NO. 11D PPH2UPO1VBS (Pin Phase / Uc Pol / V Blk Sw) with ▲ or ▼ key. Adjust the data with number keys 69.
19. Select NO. 11E HPO2CSH1NIN (H Position / CLP Shift / Non Inter) with ▲ or ▼ key. Adjust the data with number keys for 5D.
20. Select NO. 120 AAN2AGS1 (AFC Angle / AFC Switch) with ▲ or ▼ key. Adjust the data with number keys for 64.
21. Select NO. 126 VCP4HCP (V Comp / H Comp) with ▲ or ▼ key. Adjust the data with number keys for 87.
22. Select NO. 15E RF-LLV (RF LTI Level) with ▲ or ▼ key. Adjust the data with number keys for 01.
23. Select NO. 173 4P-CB (480P CB Offset) with ▲ or ▼ key. Adjust the data with number keys for 04.
24. Select NO. 174 1I-CB (1080I CB Offset) with ▲ or ▼ key. Adjust the data with number keys for F3.
25. Select NO. 179 4I-CR (480I CR Offset) with ▲ or ▼ key. Adjust the data with number keys for F4.
26. Select NO. 17A 4P-CR (480P CR Offset) with ▲ or ▼ key. Adjust the data with number keys for F4.
27. Select NO. 17B 1I-CR (1080I CR Offset) with ▲ or ▼ key. Adjust the data with number keys for F0.
28. Select NO. 185 RF-VMD (RF VM Delay) with ▲ or ▼ key. Adjust the data with number keys for 03.
29. Select NO. 186 41-VMD (480I VM Delay) with ▲ or ▼ key. Adjust the data with number keys for 03.
30. Select NO. 187 4P-VMD (480P VM Delay) with ▲ or ▼ key. Adjust the data with number keys for 03.
31. Select NO. 188 1I-VMD (1080I / 720P VM Delay) with ▲ or ▼ key. Adjust the data with number keys for 03.
32. Select NO. 189 H-VMD (HDMI VM Delay) with ▲ or ▼ key. Adjust the data with number keys for 03.
33. Select NO. 18A D-VMD (Digital VM Delay) with ▲ or ▼ key. Adjust the data with number keys for 03.
34. Select NO. 1E1 4IHPO (480I Full H Position) with ▲ or ▼ key. Adjust the data with number keys for 07.
35. Select NO. 1F4 4PHPO (480P Full H Position) with ▲ or ▼ key. Adjust the data with number keys for 07.
36. Select NO. 207 7PHPO (720P Full H Position) with ▲ or ▼ key. Adjust the data with number keys for 07.
37. Select NO. 21A 1IHPO (1080I Full H Position) with ▲ or ▼ key. Adjust the data with number keys for 07.
38. Select NO. 22D DHPO (Digital Full H Position) with ▲ or ▼ key. Adjust the data with number keys for 07.
39. Select NO. 273 S-BRI (Bright Screen Adjust Mode) with ▲ or ▼ key. Adjust the data with number keys for 20.
40. Select NO. 05E CONTRAST (Contrast) with ▲ or ▼ key. Adjust the data with number keys for 38.
41. Select NO. 063 HA15HG2 (HD Amp2 / HD Gain2) with ▲ or ▼ key. Adjust the data with number keys for 85.
42. Select NO. 064 HA15HG (HD Amp3 / HD Gain3) with ▲ or ▼ key. Adjust the data with number keys for A0.
43. Select NO. 088 OP2 (Option 2 Data) with ▲ or ▼ key. Adjust the data with number keys for 02.
44. Press the MENU key to turn off the Service Menu display.

Table 1. ON-SCREEN SERVICE MENU

When IC802 (EEPROM) is replaced, check the bus data to confirm they are the same as below. The shaded menu should be checked and be set up or readjusted according to the procedures described in the following pages. Initial Setup Data marked with an * should be changed from Initial Reference Data. (See pages 3 and 4 for Initial Bus Data Setup.)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
100	PRGBON4DL2ES1SF	FD	FD	11111101	PIC+R+G+B On(7~4), D COL(3~2), ES1(1):0(fixed), SF(0)
101	BLKBTM	00	00	00000000	BLK_BTM(1~0)
102	SHU2PO	23	37*	00110111	SUB HUE(7~2), PRE/OVER(1~0)
103	SCL2CTI	11	29*	00101001	SUB COLOR(7~2), CTI_LEV(1~0)
104	↓	↓	↓	↓	NOT USED
105	SSH2LTI	89	61*	01100011	SUB SHARPNESS(7~2), LTI_LEV(1~0)
106	RD2PTL	7C	7C	01111100	R_DRIVE(7~2), PLIMIT_LEV(1~0)
107	GD2ABLM	7F	7F	01111111	G_DRIVE(7~2), ABL_MODE(1~0)
108	BD2CTIM1	7C	7C	01111100	B_DRIVE(7~2), CTI_MODE(1)
109	SBR2GAM	29	32*	00110010	SUB_BRIGHT(7~2), GAMMA(1~0)
10A	RCT2LTIM1	58	84*	10000100	R_CUTOFF(7~2), LTI_MODE(1)
10B	GCT2DPL	1D	4D*	01001101	G_CUTOFF(7~2), DPIC_LEV(1~0)
10C	BCT2DCT	35	8D*	10001101	B_CUTOFF(7~2), DC_TRAN(1~0)
10D	SCO4LR2L	57	57	01010111	SUB_CONT(7~4), LRGB2_LEV(3~0)
10E	PABL4ABLT	F1	F1	11110001	P_ABL(7~4), ABL_TH(3~0)
10F	CB0F2AW1AB	94	9C*	10011100	CB_OFFSET(7~2), AGING_W(1), AGING_B(0)
110	CROF2SYS	B8	AC*	10101100	CR_OFFSET(7~2), SYSTEM(1~0)
111	YOF4VD2VF	02	0E*	00001110	Y_OFFSET(7~4), VM_DLY(3~2), VM_FO(1~0)
112	RYR4RYB	88	88	10001000	R-Y/R(7~4), R-Y/B(3~0)
113	GYR4GYP	88	88	10001000	G-Y/R(7~4),G-Y/B(3~0)
114	VML4FLC2FLS	F2	F2	11110010	VM_LEV(7~4), FLCOL(3~2), FLCOL SW(1)
115	UBK4LBK	00	00	00000000	UP_BLK(7~4), LO_ BLK(3~0)
116	VS	72	72	01110010	V_SIZE(7~2), bit1:1 bit0:0 (b1/b0: fixed)
117	VPS	64	64	01100100	V_POSITION(7~2)
118	VLI4SCR	63	72*	01110010	V_LIN(7~4), S_CORRECTION(3~0)
119	HSI2UUC	70	AC*	10101100	H_SIZE(7~2), UP_UCP(1~0)
11A	PAP2LUP	94	5C*	01011100	PIN AMP(7~2), LO UCP(1~0)
11B	UCP2UUG	9C	80*	10000000	UP_CPIN(7-2), UP_UCG(1-0)Y
11C	LCP2LUG	A8	70*	01110000	LO_CPIN(7-2), LO_UCG(1-0)
11D	PPH2UPO1VBS	55	69*	01101001	PIN_PHASE(7-2), UC_POL(1), VBLK_SW(0)
11E	HPO2CSH1NIN	95	5D*	01011101	H_POSITION(7-2), CLP_SHIFT(1),NONINTER(0)
11F	ABO2RAM	81	81	10000001	AFC_BOW(7-2), RF AFC_MODE(1-0)
120	AAN2AGS1	7C	64*	01100100	AFC_ANGLE(7-2), AGC_SW(1)
121	LBK2CPH	BC	BC	10111100	LEFT_BLK(7-2), CLP_PHASE(1-0)
122	RBK2CGA1HSW	9D	9D	10011101	RIGHT_BLK(7-2), CLP_GATE(1), HBLK_SW(0)
123	VAS2JSW	00	00	00000000	V_ASPECT(7-2), JMP_SW (0)
124	VSR	7D	7D	01111101	V_SCROLL(7-2), b1 : 0, b0 : 1 (b1 / b0: fixed)
125	UVL4LVL	00	00	00000000	UP_VLIN(7-4), LO_VLIN(3-0)
126	VCP4HCP	76	87*	10000111	V_COMP(7-4), H_COMP(3-0)
127	ATI3HVS2BOF1AOF	70	70	01110000	AKB-TIM(7-3), HVBTM_SW(2),BLK OFF(1), AKB OFF(0)
128	128	00	00	00000000	PRELIMINARY
129	RF-SF0	01	01	00000001	RF SHP_F0(0)
12A	4I-SF0	01	01	00000001	480I SHP_F0(0)
12B	4P-SF0	01	01	00000001	480P SHP_F0(0)
12C	1I-SF0	01	01	00000001	1080I SHP_F0(0)
12D	H-SF0	01	01	00000001	HDMI SHP_F0(0)
12E	D-SF0	01	01	00000001	DIGITAL SHP_F0(0)
12F	RF-CON	00	00	00000000	RF CONTRAST
130	4I-CON	00	00	00000000	480I CONTRAST
131	4P-CON	00	00	00000000	480P CONTRAST

SERVICE ADJUSTMENTS (Cont.)

Table 1. ON-SCREEN SERVICE MENU (Continued)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
132	1I-CON	00	00	00000000	1125I CONTRAST
133	H-CON	00	00	00000000	HDMI CONTRAST
134	D-CON	00	00	00000000	DIGITAL CONTRAST
135	W-CON	00	00	00000000	LETTER BOX CONTRAST
136	RF-HUE	00	00	00000000	RF TINT
137	4I-HUE	00	00	00000000	480I TINT
138	4P-HUE	00	00	00000000	480P TINT
139	1I-HUE	00	00	00000000	1080I TINT
13A	H-HUE	00	00	00000000	HDMIP TINT
13B	D-HUE	00	00	00000000	DIGITAL TINT
13C	W-HUE	00	00	00000000	LETTER BOX TINT
13D	RF-PRE	02	02	00000010	RF PRE/OVER(1-0)
13E	4I-PRE	03	03	00000011	480I PRE/OVER(1-0)
13F	4P-PRE	03	03	00000011	480P PRE/OVER(1-0)
140	1I-PRE	03	03	00000011	1080I PRE/OVER(1-0)
141	H-PRE	03	03	00000011	HDMI PRE/OVER(1-0)
142	D-PRE	03	03	00000011	DIGITAL PRE/OVER(1-0)
143	RF-COL	00	00	00000000	RF COLOR
144	4I-COL	00	00	00000000	480I COLOR
145	4P-COL	00	00	00000000	480P COLOR
146	1I-COL	00	00	00000000	1080I COLOR
147	H-COL	00	00	00000000	HDMI COLOR
148	D-COL	00	00	00000000	DIGITAL COLOR
149	W-COL	00	00	00000000	LETTER BOX COLOR
14A	RF-CLV	01	01	00000001	RF CTI_LEV(1-0)
14B	4I-CLV	01	01	00000001	480I CTI_LEV(1-0)
14C	4P-CLV	01	01	00000001	480P CTI_LEV(1-0)
14D	1I-CLV	01	01	00000001	1080I CTI_LEV(1-0)
14E	H-CLV	01	01	00000001	HDMI CTI_LEV(1-0)
14F	D-CLV	01	01	00000001	DIGITAL CTI_LEV(1-0)
150	RF-BRI	00	00	00000000	RF BRIGHT
151	4I-BRI	00	00	00000000	480I BRIGHT
152	4P-BRI	00	00	00000000	480P BRIGHT
153	1I-BRI	00	00	00000000	1080I BRIGHT
154	H-BRI	00	00	00000000	HDMI BRIGHT
155	D-BRI	00	00	00000000	DIGITAL BRIGHT
156	W-BRI	00	00	00000000	LETTER BOX BRIGHT
157	RF-SHP	00	00	00000000	RF SHARPNESS
158	4I-SHP	00	00	00000000	480I SHARPNESS
159	4P-SHP	00	00	00000000	480P SHARPNESS
15A	1I-SHP	00	00	00000000	1080I SHARPNESS
15B	H-SHP	00	00	00000000	720P SHARPNESS
15C	DIGITAL-SHP	00	00	00000000	DIGITAL SHARPNESS
15D	W-SHP	00	00	00000000	LETTER BOX SHARPNESS
15E	RF-LLV	00	01*	00000011	RF LTI_LEV(1-0)
15F	4I-LLV	01	01	00000001	480I LTI_LEV(1-0)
160	4P-LLV	01	01	00000001	480P LTI_LEV(1-0)
161	1I-LLV	01	01	00000001	1080I LTI_LEV(1-0)
162	H-LLV	01	01	00000001	HDMI LTI_LEV(1-0)
163	D-LLV	01	01	00000001	DIGITAL LTI_LEV(1-0)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
164	RF-CMD	00	00	00000000	RF CTI_MODE(0)
165	4I-CMD	00	00	00000000	480I CTI_MODE(0)
166	4P-CMD	00	00	00000000	480P CTI_MODE(0)
167	1I-CMD	00	00	00000000	1080I CTI_MODE(0)
168	H-CMD	00	00	00000000	HDMI CTI_MODE(0)
169	D-CMD	00	00	00000000	DIGITAL CTI_MODE(0)
16A	1I-GAM	02	02	00000010	1125I GAMMA(1-0)
16B	RF-LMD	00	00	00000000	RF LTI_MODE(0)
16C	4I-LMD	00	00	00000000	480I LTI_MODE(0)
16D	4P-LMD	00	00	00000000	480P LTI_MODE(0)
16E	1I-LMD	00	00	00000000	1080I LTI_MODE(0)
16F	H-LMD	00	00	00000000	HDMI LTI_MODE(0)
170	D-LMD	00	00	00000000	DIGITAL LTI_MODE(0)
171	RF-CB	00	00	00000000	RF CB_OFFSET
172	4I-CB	00	00	00000000	480I CB_OFFSET
173	4P-CB	00	04*	00000100	480P CB_OFFSET
174	1I-CB	00	F3*	11110011	1080I CB_OFFSET
175	H-CB	00	00	00000000	HDMI CB_OFFSET
176	D-CB	00	00	00000000	DIGITAL CB_OFFSET
177	W-CB	00	00	00000000	LETTER BOX CB_OFFSET
178	RF-CR	00	00	00000000	RF CR_OFFSET
179	4I-CR	00	F4*	11110100	480I CR_OFFSET
17A	4P-CR	00	F4*	11110100	480P CR_OFFSET
17B	1I-CR	00	F0*	11110000	1080I CR_OFFSET
17C	H-CR	00	00	00000000	HDMI CR_OFFSET
17D	D-CR	00	00	00000000	DIGITAL CR_OFFSET
17E	W-CR	00	00	00000000	LETTER BOX CR_OFFSET
17F	RF-SYS	00	00	00000000	RF SYSTEM(1-0)
180	4I-SYS	00	00	00000000	480I SYSTEM(1-0)
181	4P-SYS	00	00	00000000	480P SYSTEM(1-0)
182	1I-SYS	01	01	00000001	1080I SYSTEM(1-0)
183	H-SYS	01	01	00000001	HDMI SYSTEM(1-0)
184	D-SYS	01	01	00000001	DIGITAL SYSTEM(1-0)
185	RF-VMD	00	03*	00000011	RF VM_DLY(1-0)
186	4I-VMD	00	03*	00000011	480I VM_DLY(1-0)
187	4P-VMD	00	03*	00000011	480P VM_DLY(1-0)
188	1I-VMD	00	03*	00000011	1080I VM_DLY(1-0)
189	H-VMD	00	03*	00000011	HDMI VM_DLY(1-0)
18A	D-VMD	00	03*	00000011	DIGITAL VM_DLY(1-0)
18B	RF-VMF	02	02	00000010	RF VM_F0(1-0)
18C	4I-VMF	02	02	00000010	480I VM_F0(1-0)
18D	4P-VMF	02	02	00000010	480P VM_F0(1-0)
18E	1I-VMF	02	02	00000010	1080I VM_F0(1-0)
18F	H-VMF	02	02	00000010	HDMI VM_F0
190	D-VMF	02	02	00000010	DIGITAL VM_F0
191	W-VMF	02	02	00000010	LETTER BOX VM_F0
192	RF-RYR	08	08	00001000	RF RYR(3-0)
193	4I-RYR	08	08	00001000	480I RYR(3-0)
194	4P-RYR	08	08	00001000	480P RYR(3-0)
195	1I-RYR	08	08	00001000	1080I RYR(3-0)
196	H-RYR	08	08	00001000	HDMI RYR(3-0)
197	D-RYR	08	08	00001000	DIGITAL RYR(3-0)
198	RF-RYB	08	08	00001000	RF RYB(3-0)
199	4I-RYB	08	08	00001000	480I RYB(3-0)

SERVICE ADJUSTMENTS (Cont.)

Table 1. ON-SCREEN SERVICE MENU (Continued)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
19A	4P-RYB	08	08	00001000	480P RYB(3-0)
19B	1I-RYB	08	08	00001000	1080I RYB(3-0)
19C	H-RYB	08	08	00001000	HDMI RYB(3-0)
19D	D-RYB	08	08	00001000	DIGITAL RYB(3-0)
19E	RF-GYR	08	08	00001000	RF GYR(3-0)
19F	4I-GYR	08	08	00001000	480I GYR(3-0)
1A0	4P-GYR	08	08	00001000	480P GYR(3-0)
1A1	1I-GYR	08	08	00001000	1080I GYR(3-0)
1A2	H-GYR	08	08	00001000	HDMI GYR(3-0)
1A3	D-GYR	08	08	00001000	DIGITAL GYR(3-0)
1A4	RF-GYB	08	08	00001000	RF GYB(3-0)
1A5	4I-GYB	08	08	00001000	480I GYB(3-0)
1A6	4P-GYB	08	08	00001000	480P GYB(3-0)
1A7	1I-GYB	08	08	00001000	1080I GYB(3-0)
1A8	H-GYB	08	08	00001000	HDMI GYB(3-0)
1A9	D-GYB	08	08	00001000	DIGITAL GYB(3-0)
1AA	RF-VLV	0F	0F	00001111	RF VM_LEV(3-0)
1AB	4I-VLV	0F	0F	00001111	480I VM_LEV(3-0)
1AC	4P-VLV	0F	0F	00001111	480P VM_LEV(3-0)
1AD	1I-VLV	0F	0F	00001111	1080I VM_LEV(3-0)
1AE	H-VLV	0F	0F	00001111	HDMI VM_LEV(3-0)
1AF	D-VLV	0F	0F	00001111	1080I VM_LEV(3-0)
1B0	W-VLV	00	00	00000000	LETTER BOX VM_LEV(3-0)
1B1	1B1	00	00	00000000	PRELIMINARY
1B2	1B2	00	00	00000000	PRELIMINARY
1B3	1B3	00	00	00000000	PRELIMINARY
1B4	1B4	00	00	00000000	PRELIMINARY
1B5	1B5	00	00	00000000	PRELIMINARY
1B6	RWUBK	00	00	00000000	RF-LETTER BOX UP_BLK
1B7	RWLBK	00	00	00000000	RF-LETTER BOX LO_BLK
1B8	RWVS	00	00	00000000	RF-LETTER BOX V_SIZE
1B9	RWVPS	00	00	00000000	RF-LETTER BOX V_POSITION
1BA	RWUUC	00	00	00000000	RF-LETTER BOX UP_UCP
1BB	RWPAP	00	00	00000000	RF-LETTER BOX PIN_AMP
1BC	RWLUP	00	00	00000000	RF-LETTER BOX LO_UCP
1BD	RWUCP	00	00	00000000	RF-LETTER BOX UP_CPIN
1BE	RWUUG	00	00	00000000	RF-LETTER BOX UP_UCG
1BF	RWLCP	00	00	00000000	RF-LETTER BOX LO_CPIN
1C0	RWLUG	00	00	00000000	RF-LETTER BOX LO_UCG
1C1	RWPPH	00	00	00000000	RF-LETTER BOX PIN_PHASE
1C2	RWVBS	00	00	00000000	RF-LETTER BOX VBLK_SW
1C3	RWABO	00	00	00000000	RF-LETTER BOX AFC_BOW
1C4	RWAAN	00	00	00000000	RF-LETTER BOX AFC_ANGLE
1C5	RWVAS	00	00	00000000	RF-LETTER BOX V_ASPECT
1C6	RWJSW	00	00	00000000	RF-LETTER BOX JMP_SW
1C7	RWVSR	00	00	00000000	RF-LETTER BOX V_SCROLL
1C8	1C8	00	00	00000000	RF-LETTER BOX PRELIMINARY
1C9	CFUBK	00	00	00000000	VIDEO1/2-FULL UP_BLK
1CA	CFLBK	00	00	00000000	VIDEO1/2-FULL LO_BKL
1CB	CFVS	00	00	00000000	VIDEO1/2-FULL V_SIZE
1CC	CFVPS	00	00	00000000	VIDEO1/2-FULL V_POSITION

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
1CD	CFHSI	00	00	00000000	VIDEO1/2-FULL H_SIZE
1CE	CFHPO	00	00	00000000	VIDEO1/2-FULL H_POSITION
1CF	CFLBK	00	00	00000000	VIDEO1/2-FULL L_BLK
1D0	CFRBK	00	00	00000000	VIDEO1/2-FULL R_BLK
1D1	CFVAS	00	00	00000000	VIDEO1/2-FULL V_ASPECT
1D2	CFVSR	00	00	00000000	VIDEO1/2-FULL V_SCROLL
1D3	CWUBK	08	08	00001000	VIDEO1/2-LETTER BOX LO_BLK
1D4	CWLBK	0B	0B	00001011	VIDEO1/2-LETTER BOX LO_BLK
1D5	CWVS	00	00	00000000	VIDEO1/2-LETTER BOX V_SIZE
1D6	CWVPS	00	00	00000000	VIDEO1/2-LETTER BOX V_POSITION
1D7	CWVBS	01	01	00000001	VIDEO1/2-LETTER BOX VBLK_SW
1D8	CWVAS	12	12	00010010	VIDEO1/2-LETTER BOX V_ASPECT
1D9	CWJSW	01	01	00000001	VIDEO1/2-LETTER BOX JMP_SW
1DA	CWVSR	00	00	00000000	VIDEO1/2-LETTER BOX V_SCROLL
1DB	1DB	00	00	00000000	VIDEO1/2-LETTER BOX PRELIMINARY
1DC	4IUBK	00	00	00000000	480I-FULL UP_BLK
1DD	4ILBK	00	00	00000000	480I-FULL LO_BLK
1DE	4IVS	00	00	00000000	480I-FULL V_SIZE
1DF	4IVPS	00	00	00000000	480I-FULL V_POSITION
1E0	4IHSI	00	00	00000000	480I-FULL H_SIZE
1E1	4IHPO	00	07*	00000111	480I-FULL H_POSITION
1E2	4ILBK	00	00	00000000	480I-FULL L_BLK
1E3	4IRBK	00	00	00000000	480I-FULL R_BLK
1E4	4IVAS	00	00	00000000	480I-FULL V_ASPECT
1E5	4IVSR	00	00	00000000	480I-FULL V_SCROLL
1E6	4IWUBK	08	08	00001000	480I-LETTER BOX UP_BLK
1E7	4IWLBK	0B	0B	00001011	480I-LETTER BOX LO_BLK
1E8	4IWVS	00	00	00000000	480I-LETTER BOX V_SIZE
1E9	4IWVPS	00	00	00000000	480I-LETTER BOX V_POSITION
1EA	4IWVBS	01	01	00000001	1480I-LETTER BOX VBLK_SW
1EB	4IWVAS	12	12	00010010	480I-LETTER BOX V_ASPECT
1EC	4IWJSW	01	01	00000001	480I-LETTER BOX JMP_SW
1ED	4IWVSR	00	00	00000000	480I-LETTER BOX V_SCROLL
1EE	1EE	00	00	00000000	480I PRELIMINARY
1EF	4PUBK	00	00	00000000	480P-FULL UP_BLK
1F0	4PLBK	00	00	00000000	480P-FULL LO_BLK
1F1	4PVS	00	00	00000000	480P-FULL V_SIZE
1F2	4PVPS	00	00	00000000	480P-FULL V_POSITION
1F3	4PHSI	00	00	00000000	480P-FULL H_SIZE
1F4	4PHPO	00	07*	00000000	480P-FULL H_POSITION
1F5	4PLBK	00	00	00000000	480P-FULL L_BLK
1F6	4PRBK	00	00	00000000	480P-FULL R_BLK
1F7	4PVAS	00	00	00000000	480P-FULL V_ASPECT
1F8	4PVRS	00	00	00000000	480P-FULL V_SCROLL
1F9	4PWUBK	08	08	00001000	480P-LETTER BOX UP_BLK
1FA	4PWLBK	0B	0B	00001011	480P-LETTER BOX LO_BLK
1FB	4PWVS	00	00	00000000	480P-LETTER BOX V_SIZE
1FC	4PWVPS	00	00	00000000	480P-LETTER BOX V_POSITION
1FD	4PWVBS	01	01	00000001	480P-LETTER BOX VBLK_SW
1FE	4PWVAS	12	12	00010010	480P-LETTER BOX V_ASPECT
1FF	4PWJSW	01	01	00000001	480P-LETTER BOX JMP_SW
200	4PWVSR	00	00	00000000	480P-LETTER BOX V_SCROLL
201	201	00	00	00000000	480P PRELIMINARY
202	7PUBK	00	00	00000000	720P-FULL UP_BLK

SERVICE ADJUSTMENTS (Cont.)

Table 1. ON-SCREEN SERVICE MENU (Continued)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
203	7PLBK	00	00	00000000	720P-FULL LO_BLK
204	7PVS	00	00	00000000	720P-FULL V_SIZE
205	7PVPS	00	00	00000000	720P-FULL V_POSITION
206	7PHSI	00	00	00000000	720P-FULL H_SIZE
207	7PHPO	00	07*	00000111	720P-FULL H_POSITION
208	7PLBK	00	00	00000000	720P-FULL L_BLK
209	7PRBK	00	00	00000000	720P-FULL R_BLK
20A	7PVAS	00	00	00000000	720P-FULL V_ASPECT
20B	7PVSR	00	00	00000000	720P-FULL V_SCROLL
20C	7PWUBK	08	08	00001000	720P-LETTER BOX UP_BLK
20D	7PWLBK	0B	0B	00001011	720P-LETTER BOX LO_BLK
20E	7PWVS	00	00	00000000	720P-LETTER BOX V_SIZE
20F	7PWVPS	00	00	00000000	720P-LETTER BOX V_POSITION
210	7PWVBS	01	01	00000001	720P-LETTER BOX VBLK_SW
211	7PWVAS	12	12	00010010	720P-LETTER BOX V_ASPECT
212	7PWJSW	01	01	00000001	720P-LETTER BOX JMP_SW
213	7PWVSR	00	00	00000000	720P-LETTER BOX V_SCROLL
214	214	00	00	00000000	720P PRELIMINARY
215	1IUBK	00	00	00000000	1080I-FULL UP_BLK
216	1ILBK	00	00	00000000	1080I-FULL LO_BLK
217	1IVS	00	00	00000000	1080I-FULL V_SIZE
218	1IVPS	00	00	00000000	1080I-FULL V_POSITION
219	1IHSI	00	00	00000000	1080I-FULL H_SIZE
21A	1IHPO	00	07*	00000111	1080I-FULL H_POSITION
21B	1ILBK	00	00	00000000	1080I-FULL L_BLK
21C	1IRBK	00	00	00000000	1080I-FULL R_BLK
21D	1IVAS	00	00	00000000	1080I-FULL V_ASPECT
21E	1IVSR	00	00	00000000	1080I-FULL V_SCROLL
21F	1IWUBK	08	08	00001000	1080I-LETTER BOX UP_BLK
220	1IWLBK	0B	0B	00001011	1080I-LETTER BOX LO_BLK
221	1IWVS	00	00	00000000	1080I-LETTER BOX V_SIZE
222	1IWVPS	00	00	00000000	1080I-LETTER BOX V_POSITION
223	1IWVBS	01	01	00000001	1080I-LETTER BOX VBLK_SW
224	1IWVAS	12	12	00010010	1080I-LETTER BOX V_ASPECT
225	1IWJSW	01	01	00000001	1080I-LETTER BOX JMP_SW
226	1IWVSR	00	00	00000000	1080I-LETTER BOX V_SCROLL
227	227	00	00	00000000	1080I PRELIMINARY
228	DUBK	00	00	00000000	DIGITAL-FULL UP_BLK
229	DLBK	00	00	00000000	DIGITAL-FULL LO_BLK
22A	DVS	00	00	00000000	DIGITAL-FULL V_SIZE
22B	DVPS	00	00	00000000	DIGITAL-FULL V_POSITION
22C	DHSI	00	00	00000000	DIGITAL-FULL H_SIZE
22D	DHPO	00	07*	00000111	DIGITAL-FULL H_POSITION
22E	DLBK	00	00	00000000	DIGITAL-FULL L_BLK
22F	DRBK	00	00	00000000	DIGITAL-FULL R_BLK
230	DVAS	00	00	00000000	DIGITAL-FULL V_ASPECT
231	DVSR	00	00	00000000	DIGITAL-FULL V_SCROLL
232	232	00	00	00000000	DIGITAL PRELIMINARY
233	RZVS	00	00	00000000	RF-ZOOM V_SIZE
234	RZVPS	00	00	00000000	RF-ZOOM V_POSITION
235	RZVBS	00	00	00000000	RF-ZOOM VBLK_SW

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
236	RZVAS	00	00	00000000	RF-ZOOM V_ASPECT
237	RZZSW	00	00	00000000	RF-ZOOM ZOOM_SW
238	RZVSR	00	00	00000000	RF-ZOOM V_SCROLL
239	239	00	00	00000000	RF PRELIMINARY
23A	CZVS	00	00	00000000	VIDEO1/2-ZOOM V_SIZE
23B	CZVPS	00	00	00000000	VIDEO1/2-ZOOM V_POSITION
23C	CZVAS	00	00	00000000	VIDEO1/2-ZOOM V_ASPECT
23D	CZVSR	00	00	00000000	VIDEO1/2-ZOOM V_SCROLL
23E	23E	00	00	00000000	VIDEO1/2 PRELIMINARY
23F	4IZVS	00	00	00000000	480I-ZOOM V_SIZE
240	4IZVPS	00	00	00000000	480I-ZOOM V_POSITION
241	4IZVAS	00	00	00000000	480I-ZOOM V_ASPECT
242	4IZVSR	00	00	00000000	480I-ZOOM V_SCROLL
243	243	00	00	00000000	480I PRELIMINARY
244	4PZVS	00	00	00000000	480P-ZOOM V_SIZE
245	4PZVPS	00	00	00000000	480P-ZOOM V_POSITION
246	4PZVAS	00	00	00000000	480P-ZOOM V_ASPECT
247	4PZVSR	00	00	00000000	480P-ZOOM V_SCROLL
248	248	00	00	00000000	480P PRELIMINARY
249	4PZVS	00	00	00000000	720P-ZOOM V_SIZE
24A	4PZVPS	00	00	00000000	720P-ZOOM V_POSITION
24B	4PZVAS	00	00	00000000	720P-ZOOM V_ASPECT
24C	4PZVSR	00	00	00000000	720P-ZOOM V_SCROLL
24D	24D	00	00	00000000	720P PRELIMINARY
24E	1IZVS	00	00	00000000	1080I-ZOOM V_SIZE
24F	1IZVPS	00	00	00000000	1080I-ZOOM V_POSITION
250	1IZVAS	00	00	00000000	1080I-ZOOM V_ASPECT
251	1IZVSR	00	00	00000000	1080I-ZOOM V_SCROLL
252	252	00	00	00000000	1080I PRELIMINARY
253	DZVS	00	00	00000000	DIGITAL-ZOOM V_SIZE
254	DZVPS	00	00	00000000	DIGITAL-ZOOM V_POSITION
255	DZVAS	00	00	00000000	DIGITAL-ZOOM V_ASPECT
256	DZVSR	00	00	00000000	DIGITAL-ZOOM V_SCROLL
257	257	00	00	00000000	DIGITAL PRELIMINARY
258	PUBK	08	08	00001000	PAP-ON UP_BLK
259	PLBK	0B	0B	00001011	PAP-ON LO_BLK
25A	PVS	00	00	00000000	PAP-ON V_SIZE
25B	PVPS	00	00	00000000	PAP-ON V_POSITION
25C	PUUC	00	00	00000000	PAP-ON UP_UCP
25D	PPAP	00	00	00000000	PAP-ON PIN_AMP
25E	PLUP	00	00	00000000	PAP-ON LO_UCP
25F	PUCP	00	00	00000000	PAP-ON UP_UCP
260	PUUG	00	00	00000000	PAP-ON UP_UCG
261	PLCP	00	00	00000000	PAP-ON LO_CPIN
262	PLUG	00	00	00000000	PAP-ON LO_UCG
263	PPPH	00	00	00000000	PAP-ON PIN_PHASE
264	PVBS	01	01	00000001	PAP-ON VBLK_SW
265	PABO	00	00	00000000	PAP-ON AFC_BOW
266	PAAN	00	00	00000000	PAP-ON AFC_ANGLE
267	PVAS	12	12	00010010	PAP-ON V_ASPECT
268	PJSW	01	01	00000001	PAP-ON JMP_SW
269	PVSR	00	00	00000000	PAP-ON V_SCROLL
26A	26A	00	00	00000000	PAP-ON PRELIMINARY
26B	DWUBK	08	08	00001000	DIGITAL-LETTER BOX UP_BLK

SERVICE ADJUSTMENTS (Cont.)

Table 1. ON-SCREEN SERVICE MENU (Continued)

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
26C	DWLBK	0B	0B	00001011	DIGITAL-LETTER BOX LO_BLK
26D	DWVS	00	00	00000000	DIGITAL-LETTER BOX V_SIZE
26E	DWVPS	00	00	00000000	DIGITAL-LETTER BOX V_POSITION
26F	DWVBS	01	01	00000001	DIGITAL-LETTER BOX VBLK_SW
270	DWVAS	12	12	00010010	DIGITAL-LETTER BOX V_ASPECT
271	DWJSW	01	01	00000001	DIGITAL-LETTER BOX ZOOM_SW
272	DWVSR	00	00	00000000	DIGITAL-LETTER BOX V_SCROLL
273	S-BRI	00	20*	00100000	BRIGHT FOR SCREEN ADJUST MODE
274	VMUTE	00	00	00000000	VIDEO MUTE TIME DIF. (CHANGING INPUT)
275	VMUTE2	00	00	00000000	VIDEO MUTE TIME DIF. (EXCEPT CHANGING INPUT)
050	HF61SW42SW2SL	3D	3D	00111101	HF6(7-6),1SW(5-4), 2SW(3-2), SL(1-0)
051	D16D24D33T21I12I	03	03	00000011	D16(7-6), D24(5-4), D33(3), T2(2), 1I1(1), 2I(0)
052	VF6CP4FDS2IS	CC	CC	11001100	VF6(7-5), CP(4), FDS(3-2), IS(1-0)
053	HP2V11V2	7B	7B	01111011	HP(7-2),V1(1),V2(0)
054	4PHF	01	01	00000001	480P H-FREQUENCY
055	1IHF	02	02	00000010	1080I H-FREQUENCY
056	7PHF	03	03	00000011	720P H-FREQUENCY
057	4PVF	04	04	00000100	480P V-FREQUENCY
058	1IVF	03	03	00000011	1080I V-FREQUENCY
059	7PVF	01	01	00000001	720P V-FREQUENCY
05A	WDT	00	00	00000000	WATCH DOG TIMER (*500MSEC)
05B	EG6EM4ES2FE1PR	14	14	00010100	EG(7-6), EM(5-4), ES(3-2), FE(1). PR(0)
05C	SG4SS2FLA1FLM	F0	F0	11110000	SG(7-4), SS(3-2), FLA(1), FLM(0)
05D	LG6LL4CG2CSL	00	00	00000000	LG(7-6), LL(5-4), CG(3-2), CSL(1-0)
05E	CONTRAST	40	38*	00111000	CONTRAST
05F	CRG4CBG	00	00	00000000	CRG(7-4), CBG(3-0)
060	CRO4CBO	00	00	00000000	CRO(7-4), CBO(3-0)
061	TOF	0C	0C	00001100	Y INPUT OFFSET(7-4), BUS DCOMTRP2(3), TOF(2-0)
062	HA15HG1	0E	0E	00001110	HDAMP1(7-5), HD GAIN1(4-0)
063	HA15HG2	95	85*	10000101	HDAMP2(7-5), HD GAIN2(4-0)
064	HA15HG3	A6	A0*	10100000	HDAMP3(7-5), HD GAIN3(4-0)
065	BUS	08	08	00001000	
066	VTOF	00	00	00000000	VIDEO1/2-TOF
067	VHDAG1	0E	0E	00001110	VIDEO1/2-HDAMP1/GAIN1
068	VHDAG2	95	95	10010101	VIDEO1/2-HDAMP1/GAIN2
069	VHDAG3	A6	A6	10100110	VIDEO1/2-HDAMP1/GAIN3
06A	RSD	0A	0A	00001100	RF-SET DELAY
06B	VCSD	09	09	00001001	VIDEO1/2 COMPOSITE-SET DELAY
06C	VSSD	08	08	00001000	VIDEO1/2 S INPUT-SET DELAY
06D	HDPHC	01	01	00000001	RF VIDEO1/2(CV), H-PHASE(3-0)
06E	HDPHS	02	02	00000010	VIDEO1/2(S), H-PHASE(3-0)
080	ATT	07	07	00000000	MTS INPUT LEVEL(3-0)
081	WDB	20	20	00000000	MTS LOW SEPARATION(5-0)
082	SPC	20	20	00000000	MTS HI SEPARATION(5-0)
083	083	00	00	00000000	NOT AVAILABLE
084	084	00	00	00000000	NOT AVAILABLE
085	085	00	00	00000000	NOT AVAILABLE
086	086	00	00	00000000	NOT AVAILABLE
087	OP1	08	08	00001000	OPTION1 DATA (b3:WO/HDMI=1, W/HDMI=0)
088	OP2	00	02	00000010	OPTION2 DATA (b4:PAP=1, b1:ASPECT 16:9=1, 4:3=0)
089	OSD	02	02	00000010	OSD H-POSITION

No.	TITLE	INITIAL REFERENCE DATA HEX	INITIAL SETUP DATA HEX	INITIAL SETUP DATA BINARY	FUNCTION
08A	08A	00	00	00000000	NOT AVAILABLE
08B	VMT	48	48	01001000	VIDEO MUTE TIME
08C	AKB	10	10	00010000	AKB DETECT TIME
08D	-	00	00	00000000	NOT AVAILABLE
08E	-	00	00	00000000	NOT AVAILABLE
–	R/B DRIVE	–	–	–	R / B DRIVE LEVEL ADJUSTMENT
–	SCREEN	–	–	–	BLACK SCREEN FOR SCREEN ADJUSTMENT
0B0	ROO	–	–	–	ROM CORRECTION DATA
	↓	↓	↓	↓	↓
0F7	R47	–	–	–	ROM CORRECTION DATA

PROGRAM CODES

The microprossesor used in this model is a multi-purpose type and is used in several different models. To ensure proper operation and the correct features for your particular model, the program codes must be correct.

Note 1. Option Data 1 (NO. 087 OP1) should be Hexadecimal 08 (00001000 binary). If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0	NOT USED	–	–
1	NOT USED	–	–
2	NOT USED	–	–
3	HDMI	YES	NONE
4	NOT USED	–	–
5	NOT USED	–	–
6	NOT USED	–	–
7	NOT USED	–	–

Note 2. Option Data 2 (NO. 088 OP2) should be Hexadecimal 02 (00000010 binary). If this program code is wrong the TV will not operate properly.

BIT	FUNCTION	DATA	
		0	1
0	NOT USED	–	–
1	TV ASPECT RATIO	4:3	16:9
2	NOT USED	–	–
3	NOT USED	–	–
4	PAP	NONE	YES
5	NOT USED	–	–
6	NOT USED	–	–
7	NOT USED	–	–

SERVICE ADJUSTMENTS (Continued)

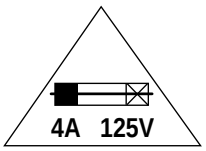
ANTENNA CONNECTIONS

This receiver is designed for UHF/VHF and Digital RF reception. A 75 ohm terminal is provided for UHF/VHF reception and a separate 75 ohm terminal is provided for Digital RF reception. When connecting a CATV antenna system, connect the 75 ohm coaxial cable directly to the 75 ohm terminal. For 300 ohm VHF antenna, use an adapter (not included with the TV set).

CIRCUIT PROTECTION

Fuse F601 (4A) is included in the AC line. This fuse must be replaced with the proper fuse (see Parts List).

CAUTION
FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 4A, 125V FUSE.



ATTENTION : POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D' INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 4A, 125V.

+B VOLTAGE CHECK

1. Connect Voltmeter + lead to TJ1 (134.5 V) and – lead to ground (Power/Deflection board).
2. Connect receiver to AC 120V line.
3. Tune receiver to an active channel.
4. Set the picture controls to the Sports level or Reset (use MENU key and ▲ or ▼ key or RESET key).
5. Voltage must measure between 133.0 V and 136.0V.

If the voltage is out of range, the power circuit must be checked. No +B adjustment is provided on this chassis.

HORIZONTAL CENTERING ADJUSTMENT

1. Tune receiver to an active channel.
2. Check that picture is in the horizontal center of TV screen. If picture is not centered horizontally, perform steps 3 - 6.
3. Turn off the receiver and disconnect the AC power cord. (120V AC line)
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 11E (HPO2: Horizontal Position, Bit 7 - 2) with ▲ or ▼ key.
6. Adjust the data with numeric keys for horizontal center. To turn off the Service Menu display, press the MENU key.

HORIZONTAL WIDTH ADJUSTMENT

1. Tune receiver to an active channel.
2. Check the picture for proper width. If width is not correct, perform steps 3 - 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 119 (HSI2: Horizontal Size, Bit 7 - 2) with ▲ or ▼ key.
6. Adjust the data with numeric keys for proper width. To turn off the Service Menu display, press the MENU key.

VERTICAL SIZE ADJUSTMENT

1. Tune receiver to an active analog channel.
2. Check the vertical size of the picture. If the vertical size is too large or small, perform steps 3 ~ 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 116 (VS: Vertical Size, Bit 7 - 2) with ▲ or ▼ key.
6. Adjust the data with + or – key for full scan. To turn off the Service Menu display, press the MENU key.

VERTICAL CENTERING ADJUSTMENT

1. Tune receiver to an active analog channel.
2. Check that picture is in the vertical center of TV screen. If picture is not centered vertically, perform steps 3 - 6.
3. Turn off the receiver and disconnect the AC power cord.
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 117 (VPS: Vertical Position) with ▲ or ▼ key.
6. Adjust the data with numeric key for vertical center. To turn off the Service Menu display, press the MENU key.

GRAYSCALE ADJUSTMENT

1. Connect a color-bar generator to the analog antenna terminal.
2. Switch the generator to the white pattern.
3. Set the picture controls to the Sports level or Reset (use MENU key and ▲ or ▼ key or RESET key).
4. Turn off the receiver and disconnect the AC power cord (120V AC line).
5. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
6. Select the following service menu items with the ▲ or ▼ keys and set the data with the numeric keys.
7. Select NO. 106 RD2 (Red Drive) and set data to 7C, NO. 107 GD2 (Green Drive) and set data to 7F, and NO. 108 BD2 (Blue Drive) and set data to 7C.
8. Set NO. 10A RCT2 (Red Cutoff) data to 84, NO. 10B GCT2 (Green Cutoff) data to 4D, and NO. 10C BCT2 (Blue Cutoff) data to 8D.
9. Set NO. 109 SBR2 (Sub Brightness) data to 32 and NO. 105 SSH2 (Sub Sharpness) data to 61.

Screen Adjustment

10. Connect oscilloscope probe (at least 50:1) to TP47G and ground lead to TE47 on the CRT socket PWB.
11. Select "Screen Adjustment" Menu (between NO. 08F and 0B0) with ▲ or ▼ key (Black Picture).
12. Adjust Screen Control (T402) to obtain 15 Vp-p from black to white level. (See Figure 2.)

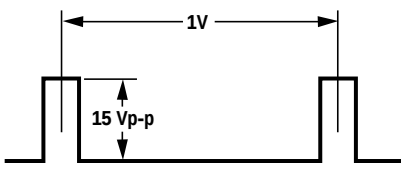


Figure 2.

Drive Level Adjustment

13. Select "Drive Level Adjustment" Menu (between NO. 08E and NO. 0B0) with ▲ or ▼ key. The Menu display will appear.
14. Adjust Red and Blue Drive Levels alternately with 1, 3, 7, or 9 key to produce normal black and white picture in highlight areas. The Drive Level adjustment data will be written in the Service Menu No. 106 and 108 automatically. (See Figure 3.)

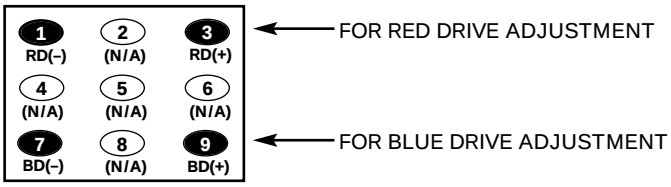


Figure 3. Remote Control Number keys' functions in Service Menu "Drive Level Adjustment"

15. Check for proper grayscale at all brightness levels.

Note: If Grayscale Adjustment is made after picture tube replacement, check Brightness Adjustment.

BRIGHTNESS LEVEL ADJUSTMENT

Note: Grayscale Adjustment and High Voltage Check must be completed before attempting Brightness Level Adjustment.

1. Connect a color-bar generator to the analog antenna terminal.
2. Switch the generator to the 15 IRE flat pattern.
3. Reset the picture controls to the Sports level. Full mode.
4. Connect voltmeter (high impedance) + lead to terminal TP51 and – lead to terminal TP50 on P/D board. Set voltmeter for 1.5V ~ 3V range.
5. Turn off the receiver and disconnect the AC power cord.
6. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
7. Select NO. 109 (SBR2: Sub Brightness, Bit 7 - 2) with ▲ or ▼ key.
8. Adjust the data with numeric keys for 35mVDC.
9. Press the MENU key to turn off the Service Menu display.
10. Check brightness level on every active channel, readjust (repeat steps 5 ~ 9), if necessary.

Note: Do not set to excessive brightness level, otherwise the contrast level will be suppressed.

SUB CONTRAST ADJUSTMENT

1. Connect a color-bar generator to the analog antenna terminal.
2. Switch the generator to the crosshatch pattern.
3. Connect oscilloscope probe (at least 50:1) to TP47G and ground lead to TE47 on the CRT socket PWB.
4. Turn off the receiver and disconnect the AC power cord.
5. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
6. Select NO. 109 (SBR2: Sub Brightness, Bit 7 - 2) with ▲ or ▼ key. Remember this data setting.
7. Set the data with numeric key to 2E with numeric keys.
8. Select NO. 10D (SCO4: Sub Contrast, Bit 7 - 4) with ▲ or ▼ key.
9. Set the data with numeric keys 4 - 7 for 100Vp-p.
10. Reset brightness level to previous data (repeat steps 6 – 7). To turn off the Service Menu display, press the MENU key.

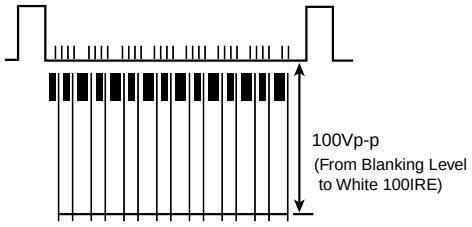


Figure 4. Sub Contrast

SUB COLOR AND SUB HUE ADJUSTMENT

Sub Hue (Tint)

1. Connect a color-bar generator to the analog antenna terminal. Set picture controls to Sports level.
2. Switch the generator to the color-bar (NTSC) pattern.
3. Connect oscilloscope probe (at least 50:1) to TP47G and ground lead to TE47 on the CRT socket PWB.
4. Turn off the receiver and disconnect the AC power cord.
5. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
6. Select NO. 102 (SHU2: Sub HUE, Bit 7 - 2) with ▲ or ▼ key.
7. Set the data with numeric keys 2 - 7 for waveform shown in Figure 5.

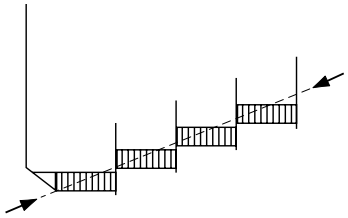


Figure 5. Sub Hue

Sub Color

8. Select NO. 103 (SCL2: Sub Color, Bit 7 - 2) with ▲ or ▼ key.
9. Set the data with numeric keys 7 -2 for waveform shown in Figure 6 (Flat Waveform).
10. After adjustment add 4 steps to NO. 102 (SHU2: Sub HUE) data and 8 steps to NO. 103 (SCL2: Sub Color) data. To turn off the Service Menu display, press the MENU key.

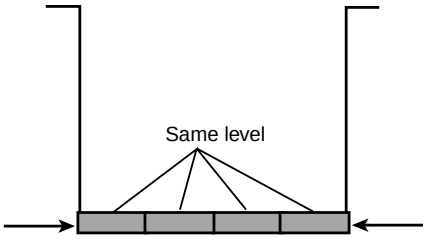


Figure 6. Sub Color

SERVICE ADJUSTMENTS (Continued)

HIGH VOLTAGE HOLD-DOWN TEST

Every time the receiver is serviced, the HIGH VOLTAGE HOLD-DOWN circuit must be tested for proper operation by following these steps:

1. Connect receiver to 120V AC line. Tune receiver to active channel. Reset the picture controls to the Sports level.
2. Check that the voltage measured between TP7 and TE7 (ground side) on the P/D PC board is within 20 VDC to 24 VDC. If the voltage is out of this range, the Hold-Down Circuit must be checked.
3. Connect a DC Voltage supply to TP7 and TE7 through a 100 ohm 1/4W resistor. Adjust the DC voltage to 26 VDC. The receiver should shut down, losing raster and sound. Then the receiver should turn off automatically. This reaction indicates that the Hold-Down circuit is functioning properly. If the receiver does not shutdown, a malfunction is indicated and its cause **must** be found and corrected.
4. To obtain picture again, remove the DC Supply and wait a few minutes. Now turn on the receiver.

HIGH VOLTAGE CHECK

Note: +B (+140V) Voltage Check and Grayscale Adjustment must be completed before attempting High Voltage Check.

1. Connect high voltage voltmeter – lead to ground, and connect + lead to anode of picture tube.
2. Tune receiver to an active channel and confirm TV is operating properly.
3. Eliminate the beam current by adjusting the contrast and brightness controls to minimum.
4. Confirm high voltage is within 28.1 KV and 32.0 KV. If reading is not within range, check horizontal circuit.

No high-voltage adjustment is provided on this chassis.

FOCUS ADJUSTMENT

Adjust focus control (T402) for well defined scanning lines.

PURITY AND CONVERGENCE ADJUSTMENTS

Purity and Convergence have been aligned at the factory. No re-alignment is necessary.

MULTI-SOUND SECTION ADJUSTMENTS

Note: Multi-Sound Section must be adjusted after A101 (U/V Tuner), IC3601 (MTS Decoder), Digital Module or IC802 (EEPROM) is replaced.

INPUT LEVEL ADJUSTMENT

1. Connect a signal to the analog antenna terminal with audio of 1 KHz 100% modulation.
2. Turn off the receiver and disconnect the AC power cord (AC 120V line).
3. Connect voltmeter (RMS) to TP317 and ground on the Main PC board.
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu will now appear.
5. Select NO. 080 (ATT: MTS Input Level) with the ▲ or ▼ key.
6. Adjust the + or – key for a voltmeter reading of 400 ± 20 mVrms at TP317.

SEPARATION ADJUSTMENT

7. Turn off the receiver and disconnect the AC power cord (AC 120V line).
8. Connect oscilloscope CH1 to TP317 and CH2 to TP318 and ground.
9. Connect an MTS TV/Stereo generator to antenna terminal.
10. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu will now appear.
11. Select pilot, 300Hz audio frequency and Left modulating signal.
12. Select NO. 081 (WDB: Wide Band) with the ▲ or ▼ key.
13. Adjust the + or – key for minimum low frequencies at TP317. (See Figure 7.)
14. Select 4 KHz audio frequency and Right modulating signal.
15. Select NO. 082 (SPC: Spectral) with the ▲ or ▼ key.
16. Adjust the + or – key for minimum high frequencies at TP318. (See Figure 7.)

Repeat adjustments (steps 11–16) until no further decreases in amplitude can be obtained. Press the MENU key to turn off the Service Menu display.

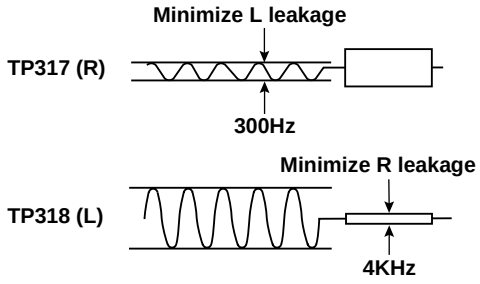


Figure 7. Separation Adjustments

PINCUSHION CORRECTION ADJUSTMENT

1. Connect a color-bar generator to the analog antenna terminal and select a crosshatch pattern.
2. Set the picture controls to the Sports level.
3. Turn off the receiver and disconnect the AC power cord (AC 120V line).
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu will now appear.
5. Select the items below with ▲ or ▼ key according to the symptoms of Figure 8.

NO.	ITEM	Bit	NAME
11A	PAP2	7 - 2	Pin AMP
11D	PPH2	7 - 2	Pin Phase
11F	ABO2	7 - 2	AFC Bow
120	AAN2	7 - 2	AFC Angle
11B	UCP2	7 - 2	Upper Corner Pin
11C	LCP2	7 - 2	Lower Corner Pin

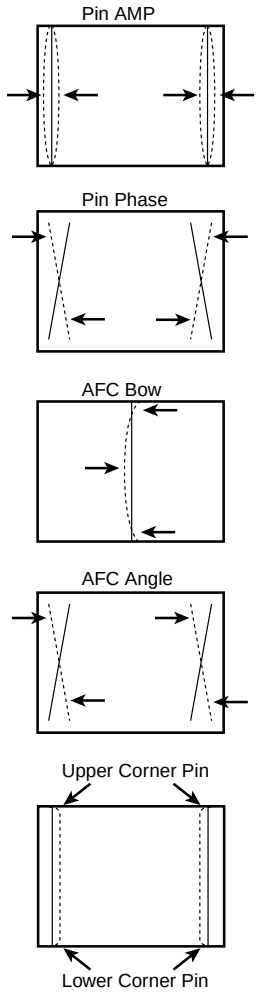


Figure 8. Pincushion Adjustments

6. Adjust the data with numeric keys for straight vertical lines. To turn off the Service Menu display, press the MENU key.

OSD ADJUSTMENT

1. Connect a color-bar generator to the analog antenna terminal.
2. Set the picture controls to the Sports level.
3. Turn off the receiver and disconnect the AC power cord. (120V AC line)
4. While pressing the VOLUME – key, reconnect the AC power cord. The Service Menu display will now appear.
5. Select NO. 089 (OSD: On-Screen Display) with ▲ or ▼ key.
6. Adjust the + or – key for proper position shown in Figure 9. To turn off the Service Menu display, press the MENU key.

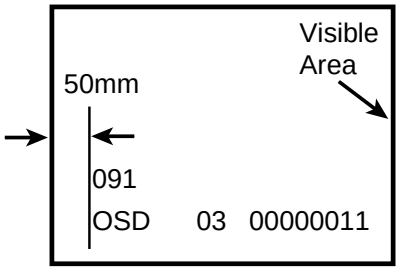


Figure 9.

COMPONENT Y LEVEL CONFIRM

1. Connect a color-bar generator to the analog antenna terminal.
2. Switch the generator to the color-bar (NTSC) pattern.
3. Connect oscilloscope probe to Connector KG pin 8 and ground on the main board.
4. Confirm a reading of 0.7 Vp-p ± .05. See Figure 10.

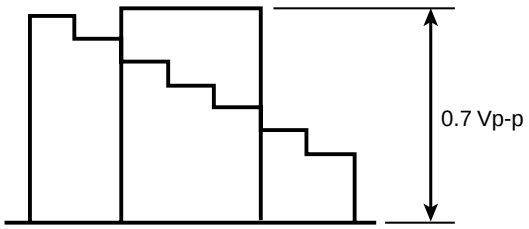


Figure 10.

5. If Y Level is out of specification, enter the Service Menu and select item 05E Contrast Data.
6. Adjust data with numeric keys. Keep data within ±2 steps of the Initial Setup Data 38H.

SERVICE HINTS

POWER FAILURE DETECTOR

This unit is equipped with a Power Failure Detector function included in the CPU which checks for an abnormal condition in the chassis power supplies, including the power supply derived from the Horizontal Output Transformer.

If, while the power is on, a failure is caused by any of the following that results in a low voltage supply, the CPU will turn the unit off in 1.5 seconds to prevent further damage:

- Failure within the power supply circuits.
- A short circuit in the load side from the supply.
- Stoppage of the Horizontal Output Oscillator caused by the X-Radiation protection Hold-Down Circuit.

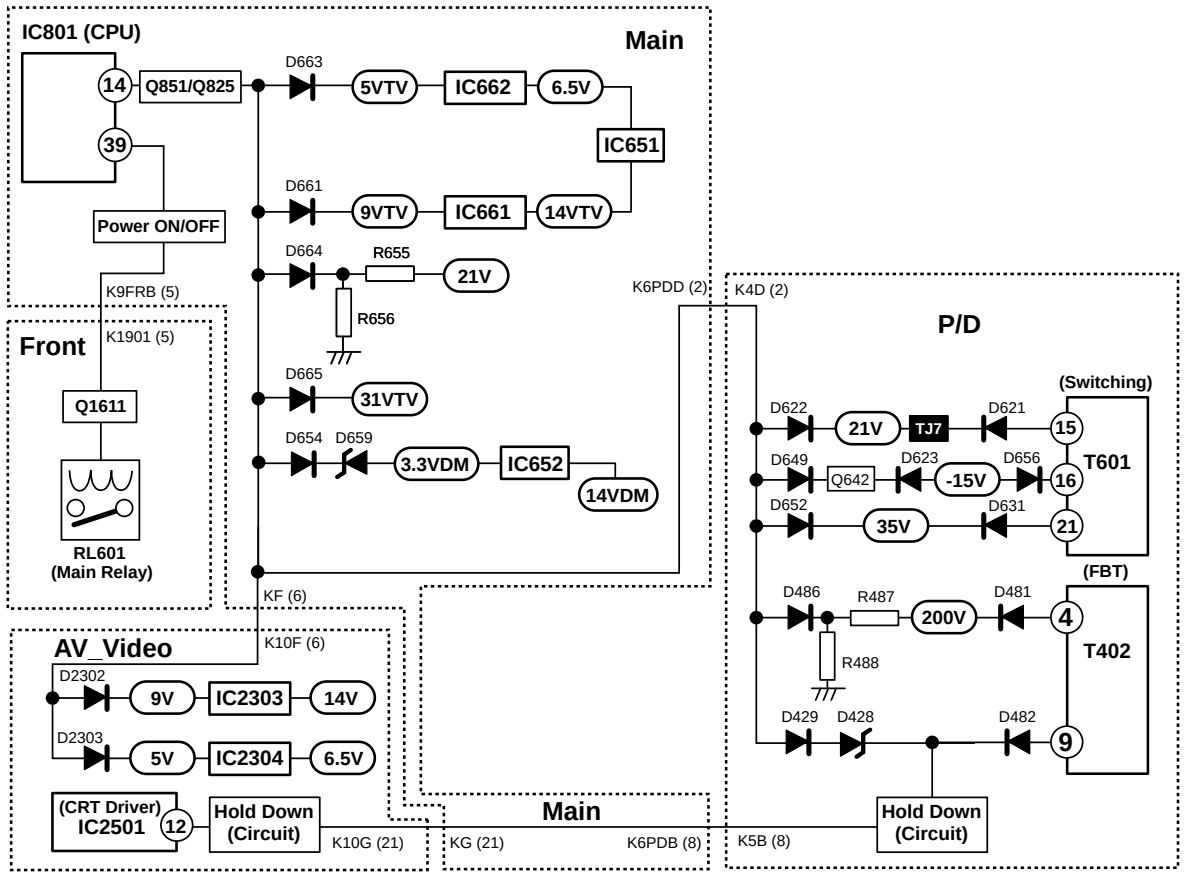
If, while the power is off, the power is switched on and any of these failures remains uncorrected, the CPU will shut off the power within three seconds.

Check the following if the unit is turned off by the power failure detector.

1. Disconnect the AC power cord (120V AC line) for at least 10 seconds.
2. Connect a DC Voltmeter to the circuits shown below.
3. Press the Power key and check for the proper voltage supplies.
4. If any of these voltages is low, the power failure detector should turn the unit off within three seconds.
5. Check all circuits shown below.

Note: This unit is equipped with a Power Surge Protection feature included in the CPU. If power failure occurs three times within 15 minutes, the CPU will automatically stop functioning to help prevent secondary damage. (TV will not turn on by pressing the power key.) To reset the operating programs within the CPU, disconnect the AC power cord for at least 10 seconds.

Block Diagram (Power Fail Lines)



MECHANICAL DISASSEMBLIES

CABINET BACK REMOVAL

1. Refer to Figure 1, remove 14 screws.
2. Pull off cabinet back and remove.

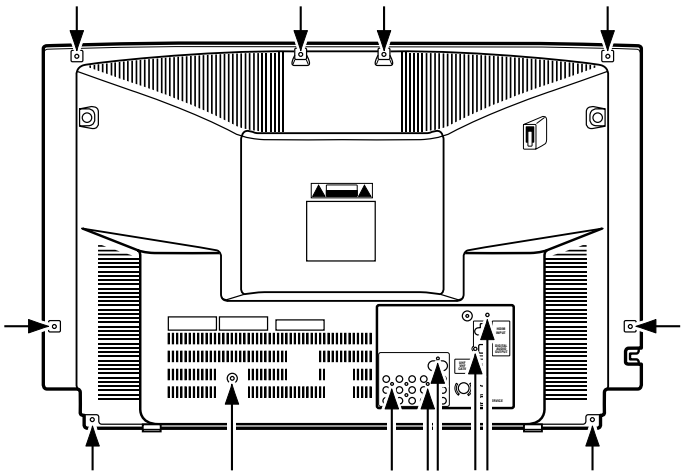


Figure 1. Cabinet Back Removal

CHASSIS REMOVAL

1. Remove cabinet back.
2. Discharge the picture tube anode (2nd anode lead) to the dag coating (picture tube grounding lead).
3. Disconnect degaussing coil socket (KD), picture tube socket, deflection yoke connector (KX), speakers connector (KSP), picture tube ground leads (2), velocity modulation coil connector (K17A) and 2nd anode lead.
4. Remove chassis completely by sliding it straight back.

PICTURE TUBE REMOVAL

CAUTION: Do not disturb the deflection yoke or magnet assembly on the picture tube neck. Care must be taken to keep these assemblies intact, unless picture tube is being replaced. Discharge the picture tube to the coating before handling the tube.

1. Remove chassis, referring to Chassis Removal instructions.
2. Place cabinet's front face down on a soft surface.
3. Remove the screw on each corner of the picture tube and GENTLY lift the picture tube out of the cabinet.
4. Install a replacement picture tube in reverse order. Properly install the degaussing coil and picture tube grounding lead on the picture tube. See Figure 2.

Note: If Picture Tube is being replaced, mount the Degaussing Coil properly on the tube. See Figure 2.

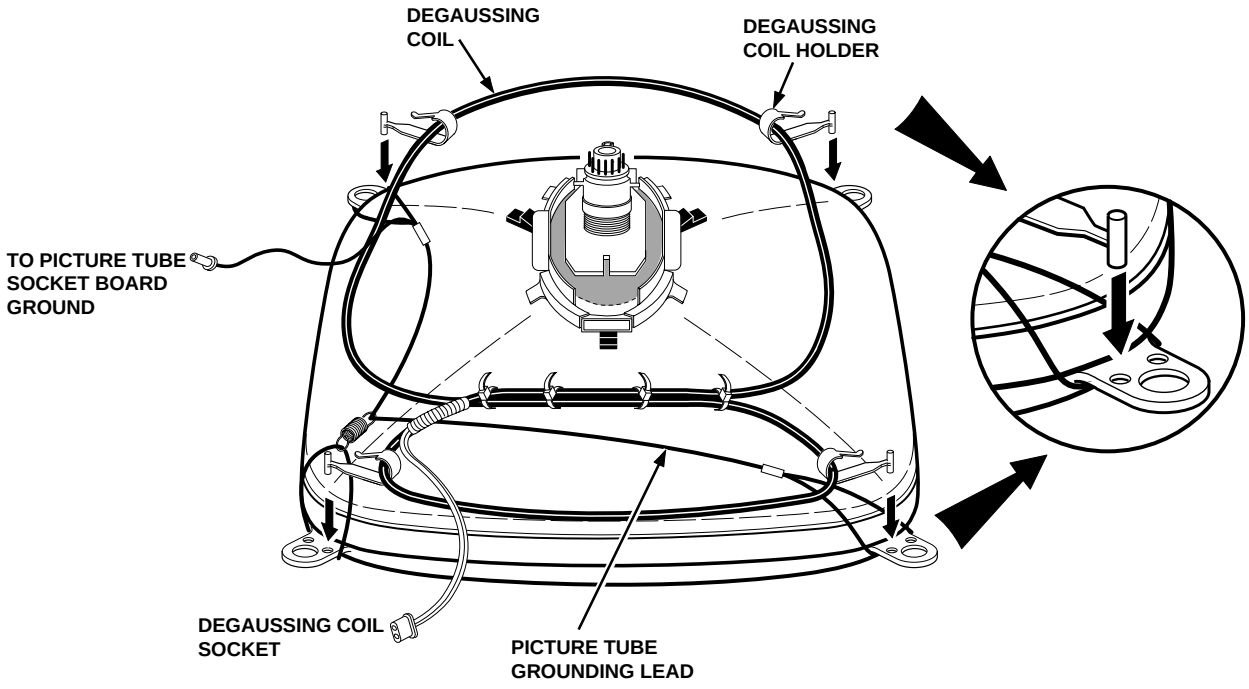


Figure 2. Picture Tube Removal

CHASSIS ELECTRICAL PARTS LIST

CAUTION: To Protect against electrical shock and for continued product safety, refer to SAFETY PRECAUTIONS, X-RADIATION PRECAUTIONS, HIGH VOLTAGE HOLD-DOWN TEST, and PRODUCT SAFETY NOTICE on Page 2.

PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A REPLACEMENT IS MADE IN ANY AREA OF A RECEIVER. COMPONENTS INDICATED BY A STAR (★) IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM DESIGNATE COMPONENTS IN WHICH SAFETY CAN BE OF SPECIAL SIGNIFICANCE. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS DESIGNATED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY A STAR. NO DEVIATIONS FROM RESISTANCE, WATTAGE, AND VOLTAGE RATINGS MAY BE MADE FOR REPLACEMENT ITEMS DESIGNATED BY A STAR.

Notes: Parts having Location Number are located on the following boards.

Numbers 400, 600, Series	On the Main Board and Power / Deflection Board
Numbers 700 Series	On the Picture Tube Socket / Velocity Modulation Board
Numbers 900 Series	Out of Board.
Numbers 1700 Series	On the Picture Tube Socket / Velocity Modulation Board
Numbers 2000 Series	On the AV / Video Board
All Other Numbers	On the Main Board and AV / Video Board

Note: Schematic part location numbers may not always match with the part descriptions. The part descriptions are correct and should be used.

CAPACITORS

NOTES:
Read description of the Capacitor as follows:

(Example)

CERAMIC 100P K 50V

- 50V — Rated Voltage
- K — Tolerance Symbols:

  less than 10PF

  A . .Not specified
  B . .±0.1PF C . .±0.25PF
  D . .±0.5PF F . .±1PF
  G . .±2PF R . .+0.25 - 0PF
  S . .+0 - 0.25PF E . .+0 - 1PF

  more than 10PF

  A . .Not specified
  B . .±0.1% C . .±0.25%
  D . .±0.5% F . .±1%
  G . .±2% H . .±3%
  J . .±5% K . .±10%
  L . .±15% M . .±20%
  N . .±30% P . .+100 - 0%
  Q . .+30 - 10% T . .+50 - 10%
  U . .+75 - 10% V . .+20 - 10%
  W .+100 - 10% X . .+40 - 20%
  Y . .+150 - 10% Z . .+80 - 20%
- 100P — Rated Value: P...Pico Farad U...Micro Farad
- CERAMIC — Material:

  CERAMIC . . . . . .Ceramic
  MT-PAPER . . . . .Metalized Paper
  POLYESTER . . .Polyester
  MT-POLYEST . .Metalized Polyester
  POLYPRO . . . . .Polypropylene
  MT-POLYPRO . .Metalized Polypropylene
  COMPO-FILM . .Composite Film
  MT-COMPO . . . .Metalized Composite
  STYRENE . . . . . .Styrene
  TA-SOLID . . . . . .Tantalum Solid
  AL-SOLID . . . . . .Aluminum Solid
  ELECT . . . . . .Electrolytic
  NP-ELECT . . . . .Non-Polarized Electrolytic
  OS-SOLID . . . . .Aluminum Solid with Organic Semiconductive Electrolytic

RESISTORS

NOTES:
Read description of the Resistor as follows:

(Example)

CARBON 4.7K J A 1/4W

- 1/4W — Rated Wattage
- A — Performance Symbols:

  A...General B...Non-flammabl
  Z...Low noise
  Other... Temperature coefficie
- J — Tolerance Symbols:

  A...0.05% B...0.1% C...25%
  D...0.5% F...1% G...2%
  J...5% K...10% M...20%
  P...+5 -15%
- 4.7K — Rated Value, ohms:

  K...1,000 M...1,000,000
- CARBON — Material:

  CARBON ..... Carbon
  MT-FILM .....Metal Film
  OXIDE-MT .....Oxide Metal Film
  SOLID .....Composition
  MT-GLAZE .....Metal Glaze
  WIRE WOUND .....Wire Wound
  CERAMIC RES .... Ceramic
  FUSIBLE RES ..... Fusible

MAIN PC BOARD

CAPACITORS

Schematic Location	Part No.	Description		
C001	404 084 3900	ELECT	10U M	50V
C006	404 084 4204	ELECT	4.7U M	50V
C007	404 089 2700	ELECT	100U M	25V
C008	403 069 0507	CERAMIC	1000P K	50V
C009	403 069 0507	CERAMIC	1000P K	50V
C010	403 237 8007	MT-COMPO	0.1U J	50V
C011	403 237 8007	MT-COMPO	0.1U J	50V
C013	404 084 3900	ELECT	10U M	50V
C015	404 084 3405	ELECT 1	000U M	25V
C018	403 237 8007	MT-COMPO	0.1U J	50V
C019	403 237 8007	MT-COMPO	0.1U J	50V
C101	404 092 9208	ELECT	1000U M	6.3V
C102	403 224 6108	CERAMIC	0.01U K	50V
C103	403 235 6203	CERAMIC	0.01U Z	50V
C105	404 084 4303	ELECT	47U M	50V
C106	403 224 6108	CERAMIC	0.01U K	50V
C646	404 084 3405	ELECT 1	000U M	25V
C648	403 279 0106	CERAMIC	0.1U Z	25V
C650	404 084 3405	ELECT 1	000U M	25V
C651	403 279 0106	CERAMIC	0.1U Z	25V
C652	404 084 3405	ELECT 1	000U M	25V
C653	404 087 1804	ELECT	1000U M	10V
C654	403 260 2003	MT-COMPO	1U J	50V
C655	403 279 0106	CERAMIC	0.1U Z	25V
C658	404 087 1804	ELECT	1000U M	10V
C659	403 260 2003	MT-COMPO	1U J	50V
C660	404 087 1804	ELECT	1000U M	10V
C661	404 084 2804	ELECT	100U M	16V
C662	404 084 2804	ELECT	100U M	16V
C663	403 279 0106	CERAMIC	0.1U Z	25V
C664	404 084 2804	ELECT	100U M	16V
C665	404 084 2804	ELECT	100U M	16V
C666	403 279 0106	CERAMIC	0.1U Z	25V
C672	403 260 2003	MT-COMPO	1U J	50V
C801	403 224 5507	CERAMIC	22P J	50V
C802	403 224 5507	CERAMIC	22P J	50V
C804	403 235 6203	CERAMIC	0.01U Z	50V
C806	403 235 6203	CERAMIC	0.01U Z	50V
C814	403 235 6203	CERAMIC	0.01U Z	50V
C816	403 235 0003	CERAMIC	33P J	50V
C818	403 224 5507	CERAMIC	22P J	50V
C821	403 224 5507	CERAMIC	22P J	50V
C822	404 084 2408	ELECT	470U M	6.3V
C823	403 235 6203	CERAMIC	0.01U Z	50V
C824	404 084 3801	ELECT	1U M	50V
C825	403 224 5705	CERAMIC	1000P K	50V
C826	403 235 0706	CERAMIC	120P J	50V
C827	403 235 6203	CERAMIC	0.01U Z	50V
C829	403 235 6203	CERAMIC	0.01U Z	50V
C832	403 224 5507	CERAMIC	22P J	50V
C833	403 235 0300	CERAMIC	56P J	50V
C834	403 235 0300	CERAMIC	56P J	50V
C835	403 235 0300	CERAMIC	56P J	50V
C836	403 235 0300	CERAMIC	56P J	50V
C837	403 235 4605	CERAMIC	270P K	50V
C840	403 224 5507	CERAMIC	22P J	50V
C841	403 224 5507	CERAMIC	22P J	50V
C842	403 224 5507	CERAMIC	22P J	50V
C844	403 224 5804	CERAMIC	2200P K	50V
C852	403 235 1000	CERAMIC	220P J	50V
C854	403 234 8901	CERAMIC	4P C	50V
C855	403 234 8901	CERAMIC	4P C	50V
C856	403 234 8901	CERAMIC	4P C	50V
C862	403 235 6203	CERAMIC	0.01U Z	50V
C863	404 084 3801	ELECT	1U M	50V
C864	403 235 6203	CERAMIC	0.01U Z	50V
C865	404 084 2507	ELECT	47U M	10V
C866	404 084 3801	ELECT	1U M	50V
C867	403 235 6203	CERAMIC	0.01U Z	50V
C871	403 279 0106	CERAMIC	0.1U Z	25V
C1261	403 279 0106	CERAMIC	0.1U Z	25V
C1262	404 084 3207	ELECT	47U M	16V
C1263	403 279 0106	CERAMIC	0.1U Z	25V
C1264	403 279 0106	CERAMIC	0.1U Z	25V
C1265	403 279 0106	CERAMIC	0.1U Z	25V
C1270	404 085 5606	NP-ELECT	22U M	16V
C1273	404 085 5606	NP-ELECT	22U M	16V
C1276	404 085 5606	NP-ELECT	22U M	16V
C1292	404 088 5702	ELECT	22U M	16V
C1293	404 088 5702	ELECT	22U M	16V
C1294	404 088 5702	ELECT	22U M	16V
C1815	403 279 0106	CERAMIC	0.1U Z	25V
C1851	404 084 3207	ELECT	47U M	16V
C1852	403 279 0106	CERAMIC	0.1U Z	25V
C1853	403 235 0607	CERAMIC	100P J	50V
C1854	403 235 0607	CERAMIC	100P J	50V
C1855	403 235 0904	CERAMIC	180P J	50V
C1857	403 235 1406	CERAMIC	470P J	50V
C2801	403 279 0106	CERAMIC	0.1U Z	25V
C2802	403 279 0106	CERAMIC	0.1U Z	25V
C2803	403 279 0106	CERAMIC	0.1U Z	25V
C2804	403 279 0106	CERAMIC	0.1U Z	25V
C2806	404 084 4006	ELECT	2.2U M	50V
C2807	403 224 6108	CERAMIC	0.01U K	50V
C2810	404 084 2804	ELECT	100U M	16V
C2811	403 279 0106	CERAMIC	0.1U Z	25V
C2812	404 084 2804	ELECT	100U M	16V
C2813	403 279 0106	CERAMIC	0.1U Z	25V
C2814	403 279 0106	CERAMIC	0.1U Z	25V
C2825	404 084 3801	ELECT	1U M	50V
C2827	404 084 3801	ELECT	1U M	50V
C2902	404 084 2705	ELECT	10U M	16V
C2904	404 084 2705	ELECT	10U M	16V
C2905	403 279 0106	CERAMIC	0.1U Z	25V
C2907	404 084 2705	ELECT	10U M	16V
C2908	404 084 2804	ELECT	100U M	16V
C2914	403 279 0106	CERAMIC	0.1U Z	25V
C2940	404 084 2705	ELECT	10U M	16V

Schematic Location	Part No.	Description		
C2943	404 084 2705	ELECT	10U M	16V
C2945	404 084 2705	ELECT	10U M	16V
C2950	403 279 0106	CERAMIC	0.1U Z	25V
C2951	404 084 2804	ELECT	100U M	16V
C2952	404 085 5606	NP-ELECT	22U M	16V
C2954	404 085 5606	NP-ELECT	22U M	16V
C2956	404 085 5606	NP-ELECT	22U M	16V
C3243	404 087 1200	ELECT	0.1U M	50V
C3401	404 089 6500	NP-ELECT	4.7U M	50V
C3402	404 084 3801	ELECT	1U M	50V
C3403	404 084 3801	ELECT	1U M	50V
C3404	404 084 3801	ELECT	1U M	50V
C3406	403 343 4603	CERAMIC	0.022U K	50V
C3407	403 224 5804	CERAMIC	2200P K	50V
C3408	404 087 1200	ELECT	0.1U M	50V
C3410	404 085 4708	NP-ELECT	10U M	16V
C3411	404 084 3801	ELECT	1U M	50V
C3412	404 084 3801	ELECT	1U M	50V
C3415	404 084 2903	ELECT 1	000U M	16V
C3416	404 084 3306	ELECT	470U M	16V
C3417	404 084 3801	ELECT	1U M	50V
C3418	404 084 3801	ELECT	1U M	50V
C3419	404 084 3801	ELECT	1U M	50V
C3420	403 260 2904	MT-COMPO	0.33U J	50V
C3421	404 085 4708	NP-ELECT	10U M	16V
C3424	403 224 5804	CERAMIC	2200P K	50V
C3425	404 084 3801	ELECT	1U M	50V
C3427	404 084 3801	ELECT	1U M	50V
C3428	404 084 3801	ELECT	1U M	50V
C3429	404 084 3801	ELECT	1U M	50V
C3430	404 089 6500	NP-ELECT	4.7U M	50V
C3435	404 091 6604	ELECT	4.7U M	25V
C3437	404 091 6604	ELECT	4.7U M	25V
C3489	404 084 3306	ELECT	470U M	16V
C3606	404 089 6500	NP-ELECT	4.7U M	50V
C3608	403 235 5701	CERAMIC	5600P K	50V
C3609	403 325 2504	CERAMIC	0.012U K	50V
C3610	404 084 3702	ELECT 0	.47U M	50V
C3611	404 084 3702	ELECT 0	.47U M	50V
C3612	404 084 3207	ELECT	47U M	16V
C3613	403 235 1307	CERAMIC	390P J	50V
C3615	404 091 6604	ELECT	4.7U M	25V
C3616	404 084 3306	ELECT	470U M	16V
C3617	404 089 6500	NP-ELECT	4.7U M	50V
C3618	404 084 2903	ELECT 1	000U M	16V
C3619	404 091 6604	ELECT	4.7U M	25V
C3620	404 089 6500	NP-ELECT	4.7U M	50V
C3622	403 224 5606	CERAMIC	2700P K	50V
C3623	403 323 3602	CERAMIC	0.047U K	50V
C3624	403 342 9203	TA-SOLID	3.3U K	10V
C3626	404 089 6500	NP-ELECT	4.7U M	50V
C3627	403 299 1820	TA-SOLID	10U K	10V
C3628	404 084 3801	ELECT	1U M	50V
C3629	404 089 6500	NP-ELECT	4.7U M	50V
C3630	404 089 6500	NP-ELECT	4.7U M	50V

Schematic Location	Part No.	Description
	DIODES	
D101	645 076 3502	SURGE-ABSORBER
D651	407 223 5209	DIODE RK46 015-304
D654	407 012 4406	DIODE 1SS133
D655	407 223 5209	DIODE RK46 015-304
D659	407 231 8506	ZD UDZS3.0B-TE-17
	407 187 7400	ZENER DIODE UDZ3.0B TE-17
	407 224 4706	ZENER DIODE 02DZ3.0Z(TPH3
D661	407 012 4406	DIODE 1SS133
D663	407 012 4406	DIODE 1SS133
D664	407 012 4406	DIODE 1SS133
D665	407 012 4406	DIODE 1SS133
D672	407 223 5209	DIODE RK46 015-304
D801	407 206 5608	ZENER DIODE UDZS10B TE-17
D805	407 206 5608	ZENER DIODE UDZS10B TE-17
D809	407 206 5608	ZENER DIODE UDZS10B TE-17
D810	407 206 5608	ZENER DIODE UDZS10B TE-17
D812	407 206 6308	ZENER DIODE UDZS5.1B TE-17
D816	407 206 5608	ZENER DIODE UDZS10B TE-17
D822	407 206 5608	ZENER DIODE UDZS10B TE-17
D825	407 206 5608	ZENER DIODE UDZS10B TE-17
D826	407 149 0807	DIODE 1SS355 TE-17
D827	407 206 5608	ZENER DIODE UDZS10B TE-17
D828	407 206 5608	ZENER DIODE UDZS10B TE-17
D835	407 221 7106	ZENER DIODE UDZS-TE-1712B
D836	407 221 7106	ZENER DIODE UDZS-TE-1712B
D837	407 206 5608	ZENER DIODE UDZS10B TE-17
D838	407 206 5608	ZENER DIODE UDZS10B TE-17
D839	407 206 5608	ZENER DIODE UDZS10B TE-17
D840	407 206 5608	ZENER DIODE UDZS10B TE-17
D841	407 206 5608	ZENER DIODE UDZS10B TE-17
D842	407 206 5608	ZENER DIODE UDZS10B TE-17
D857	407 209 1201	ZENER DIODE UDZS6.2B TE-17
D858	407 012 4406	DIODE 1SS133
D871	407 206 5608	ZENER DIODE UDZS10B TE-17
D896	407 206 5608	ZENER DIODE UDZS10B TE-17
D897	407 206 5608	ZENER DIODE UDZS10B TE-17
D898	407 206 5608	ZENER DIODE UDZS10B TE-17
D899	407 206 5608	ZENER DIODE UDZS10B TE-17
D3401	407 092 9526	DIODE SB07-03C-TB
D3413	407 206 5608	ZENER DIODE UDZS10B TE-17
D3414	407 206 5608	ZENER DIODE UDZS10B TE-17
D3416	407 221 7106	ZENER DIODE UDZS-TE-1712B
D3617	407 092 9526	DIODE SB07-03C-TB
	INTEGRATED CIRCUITS	
IC001	409 616 1607	IC LA42072N-E
IC651	410 401 0002	IC SI-8050SS LF1113
IC652	409 503 7507	IC PQ1CG3032FZ
IC653	409 503 7507	IC PQ1CG3032FZ
IC661	410 401 0101	IC SI-3090FA LF1113
IC662	410 330 6007	IC SI-3050FA LF1113
IC801	410 537 6503	IC M37151MA-XXXFP
IC802	409 301 2803	IC MN1381-Q

Schematic Location	Part No.	Description
IC803	409 495 7103	IC CAT24WC08P
	409 463 6206	IC M24C08-BN6
	409 383 6805	IC 24LC08B/P
IC804	409 400 2704	IC TC7SET08F-TE85L
IC1261	409 444 4722	IC NJM2534M-TE2
IC1262	409 444 4722	IC NJM2534M-TE2
IC1263	409 444 4722	IC NJM2534M-TE2
IC1851	409 223 1809	IC MC74HC04AF
IC2801	409 523 5002	IC TA1318AF
IC3401	409 564 4309	IC NJW1142M
IC3601	409 572 2205	IC CXA2104S
	COILS	
L001	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L101	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L651	645 045 9436	INDUCTOR, 330U K
L652	645 049 3751	INDUCTOR, 47UH K
L653	645 047 6655	INDUCTOR, 33U K
L654	645 047 6655	INDUCTOR, 33U K
L661	645 049 3751	INDUCTOR, 47UH K
L801	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L802	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L803	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L804	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L811	645 006 2490	INDUCTOR, 1U K
	645 016 2411	INDUCTOR, 1U K
L837	645 006 2490	INDUCTOR, 1U K
	645 016 2411	INDUCTOR, 1U K
L1851	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
L2804	645 008 2870	INDUCTOR, 47U K
	645 016 3074	INDUCTOR, 47U K
	TRANSISTORS	
Q825	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q851	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB

Schematic Location	Part No.	Description
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q1293	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q1295	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q1297	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2902	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2903	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2904	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2906	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB

Schematic Location	Part No.	Description
Q2906 (Cont.)	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2910	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2942	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2943	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2950	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q3410	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q3420	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q3457	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB

Schematic Location	Part No.	Description
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q3459	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S

RESISTORS

R001	401 026 4308	CARBON	3.3K JA	1/6W
R002	401 026 4308	CARBON	3.3K JA	1/6W
R003	401 025 4200	CARBON	1.8K JA	1/6W
R004	401 025 4200	CARBON	1.8K JA	1/6W
★ R007	402 057 4800	WIRE WOUND	1.5 JA	7W
R008	401 027 8602	CARBON	8.2K JA	1/6W
R014	401 015 6504	CARBON	2.2 JA	1/4W
R015	401 015 6504	CARBON	2.2 JA	1/4W
R016	401 015 6504	CARBON	2.2 JA	1/4W
R017	401 015 6504	CARBON	2.2 JA	1/4W
R101	401 024 6700	CARBON	100 JA	1/6W
R102	401 024 6700	CARBON	100 JA	1/6W
R103	401 026 0607	CARBON	270 JA	1/6W
R106	401 024 6700	CARBON	100 JA	1/6W
R108	401 026 9907	CARBON	4.7K JA	1/6W
R634	401 256 0309	MT-GLAZE	820 JA	1/10W
R650	401 256 6905	MT-GLAZE	680 JA	1/10W
R651	401 256 2907	MT-GLAZE	150 JA	1/10W
R652	401 162 4002	MT-GLAZE	560 JA	1/10W
R653	401 162 2800	MT-GLAZE	1.8K JA	1/10W
R654	401 256 7506	MT-GLAZE	390 JA	1/10W
R655	401 150 6100	MT-GLAZE	2.2K JA	1/10W
R656	401 162 3104	MT-GLAZE	3.3K JA	1/10W
R659	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
R665	401 150 6209	MT-GLAZE	1K JA	1/10W
★ R666	401 111 3100	OXIDE-MT	0.82 JA	2W
R676	401 150 6209	MT-GLAZE	1K JA	1/10W
R801	401 162 4101	MT-GLAZE	5.6K JA	1/10W
R802	401 150 5905	MT-GLAZE	10K JA	1/10W
R803	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
R805	401 024 6700	CARBON	100 JA	1/6W
R806	401 255 6500	MT-GLAZE	100 JA	1/10W
R807	401 024 6700	CARBON	100 JA	1/6W
R809	401 024 6700	CARBON	100 JA	1/6W
R810	401 026 4308	CARBON	3.3K JA	1/6W
R811	401 162 3104	MT-GLAZE	3.3K JA	1/10W
R812	401 024 7004	CARBON	1K JA	1/6W
R814	401 024 6700	CARBON	100 JA	1/6W
R815	401 024 7004	CARBON	1K JA	1/6W
R816	401 024 6700	CARBON	100 JA	1/6W
R817	401 024 6700	CARBON	100 JA	1/6W

Schematic Location	Part No.	Description
R824	401 024 7004	CARBON 1K JA 1/6W
R826	401 025 7805	CARBON 2.2K JA 1/6W
R827	401 024 6700	CARBON 100 JA 1/6W
R828	401 150 5905	MT-GLAZE 10K JA 1/10W
R829	401 024 6700	CARBON 100 JA 1/6W
R830	401 150 5905	MT-GLAZE 10K JA 1/10W
R831	401 150 5905	MT-GLAZE 10K JA 1/10W
R833	401 256 3805	MT-GLAZE 1.5K JA 1/10W
R834	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R835	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R836	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R837	401 150 5905	MT-GLAZE 10K JA 1/10W
R838	401 024 6700	CARBON 100 JA 1/6W
R839	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R840	401 150 5905	MT-GLAZE 10K JA 1/10W
R841	401 027 2600	CARBON 5.6K JA 1/6W
R842	401 150 5905	MT-GLAZE 10K JA 1/10W
R843	401 026 4308	CARBON 3.3K JA 1/6W
R844	401 024 6700	CARBON 100 JA 1/6W
R845	401 024 6700	CARBON 100 JA 1/6W
R846	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R849	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R851	401 150 5905	MT-GLAZE 10K JA 1/10W
R852	401 027 0309	CARBON 47K JA 1/6W
R853	401 256 6301	MT-GLAZE 47K JA 1/10W
R855	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R856	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R866	401 255 6005	MT-GLAZE 1M JA 1/10W
R876	401 024 7004	CARBON 1K JA 1/6W
R880	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R881	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R885	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R886	401 150 5905	MT-GLAZE 10K JA 1/10W
R887	401 150 5905	MT-GLAZE 10K JA 1/10W
R894	401 024 7004	CARBON 1K JA 1/6W
R895	401 024 7004	CARBON 1K JA 1/6W
R896	401 024 6700	CARBON 100 JA 1/6W
R897	401 024 6700	CARBON 100 JA 1/6W
R898	401 024 6700	CARBON 100 JA 1/6W
R899	401 024 6700	CARBON 100 JA 1/6W
R1262	401 256 2709	MT-GLAZE 75 JA 1/10W
R1263	401 027 6608	CARBON 75 JA 1/6W
R1265	401 256 2709	MT-GLAZE 75 JA 1/10W
R1266	401 027 6608	CARBON 75 JA 1/6W
R1268	401 256 2709	MT-GLAZE 75 JA 1/10W
R1269	401 027 6608	CARBON 75 JA 1/6W
R1279	401 150 6209	MT-GLAZE 1K JA 1/10W
R1280	401 027 2105	CARBON 56 JA 1/6W
R1285	401 256 1702	MT-GLAZE 33K JA 1/10W
R1286	401 256 7209	MT-GLAZE 18K JA 1/10W
R1287	401 256 1702	MT-GLAZE 33K JA 1/10W
R1288	401 256 4109	MT-GLAZE 56 JA 1/10W
R1289	401 256 7209	MT-GLAZE 18K JA 1/10W
R1290	401 256 1702	MT-GLAZE 33K JA 1/10W
R1291	401 256 4109	MT-GLAZE 56 JA 1/10W
R1294	401 027 2105	CARBON 56 JA 1/6W

Schematic Location	Part No.	Description
R1295	401 150 6209	MT-GLAZE 1K JA 1/10W
R1296	401 256 7209	MT-GLAZE 18K JA 1/10W
R1297	401 027 2105	CARBON 56 JA 1/6W
R1298	401 150 6209	MT-GLAZE 1K JA 1/10W
R1299	401 256 4109	MT-GLAZE 56 JA 1/10W
R1851	401 025 4606	CARBON 18K JA 1/6W
R1852	401 026 4308	CARBON 3.3K JA 1/6W
R1855	401 256 3607	MT-GLAZE 15K JA 1/10W
R1856	401 256 7209	MT-GLAZE 18K JA 1/10W
R1857	401 256 6608	MT-GLAZE 68K JA 1/10W
R2807	401 027 2600	CARBON 5.6K JA 1/6W
R2809	401 256 4901	MT-GLAZE 360 JA 1/10W
R2811	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2815	401 024 6700	CARBON 100 JA 1/6W
R2816	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R2819	401 256 7605	MT-GLAZE 3.9K JA 1/10W
R2821	401 255 6500	MT-GLAZE 100 JA 1/10W
R2822	401 255 6500	MT-GLAZE 100 JA 1/10W
R2824	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2827	401 024 6700	CARBON 100 JA 1/6W
R2828	401 150 5905	MT-GLAZE 10K JA 1/10W
R2829	401 150 5905	MT-GLAZE 10K JA 1/10W
R2901	401 150 6209	MT-GLAZE 1K JA 1/10W
R2902	401 255 6500	MT-GLAZE 100 JA 1/10W
R2903	401 026 9600	CARBON 470 JA 1/6W
R2904	401 255 6500	MT-GLAZE 100 JA 1/10W
R2906	401 026 9303	CARBON 47 JA 1/6W
R2907	401 256 0408	MT-GLAZE 12K JA 1/10W
R2908	401 256 0408	MT-GLAZE 12K JA 1/10W
R2909	401 026 9303	CARBON 47 JA 1/6W
R2910	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2916	401 026 9303	CARBON 47 JA 1/6W
R2917	401 256 0408	MT-GLAZE 12K JA 1/10W
R2918	401 256 0408	MT-GLAZE 12K JA 1/10W
R2919	401 026 9303	CARBON 47 JA 1/6W
R2920	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2921	401 026 9600	CARBON 470 JA 1/6W
R2922	401 150 6209	MT-GLAZE 1K JA 1/10W
R2926	401 026 9303	CARBON 47 JA 1/6W
R2927	401 256 0408	MT-GLAZE 12K JA 1/10W
R2928	401 256 0408	MT-GLAZE 12K JA 1/10W
R2929	401 026 9303	CARBON 47 JA 1/6W
R2930	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2931	401 027 6608	CARBON 75 JA 1/6W
R2932	401 027 6608	CARBON 75 JA 1/6W
R2933	401 027 6608	CARBON 75 JA 1/6W
R2940	401 256 0408	MT-GLAZE 12K JA 1/10W
R2941	401 256 0408	MT-GLAZE 12K JA 1/10W
R2942	401 026 9303	CARBON 47 JA 1/6W
R2943	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2944	401 026 9303	CARBON 47 JA 1/6W
R2945	401 027 6608	CARBON 75 JA 1/6W
R2946	401 256 0408	MT-GLAZE 12K JA 1/10W
R2947	401 256 0408	MT-GLAZE 12K JA 1/10W
R2948	401 026 9303	CARBON 47 JA 1/6W
R2949	401 150 6100	MT-GLAZE 2.2K JA 1/10W

Schematic Location	Part No.	Description		
R2950	401 026 9303	CARBON	47 JA	1/6W
R2951	401 256 0408	MT-GLAZE	12K JA	1/10W
R2952	401 150 6100	MT-GLAZE	2.2K JA	1/10W
R2953	401 026 9303	CARBON	47 JA	1/6W
R2954	401 027 6608	CARBON	75 JA	1/6W
R2955	401 027 6608	CARBON	75 JA	1/6W
R2956	401 256 2709	MT-GLAZE	75 JA	1/10W
R2957	401 026 9303	CARBON	47 JA	1/6W
R2958	401 256 2709	MT-GLAZE	75 JA	1/10W
R2959	401 256 0408	MT-GLAZE	12K JA	1/10W
R2960	401 256 2709	MT-GLAZE	75 JA	1/10W
R3411	401 150 5905	MT-GLAZE	10K JA	1/10W
R3412	401 150 5905	MT-GLAZE	10K JA	1/10W
R3413	401 024 6700	CARBON	100 JA	1/6W
R3414	401 024 6700	CARBON	100 JA	1/6W
R3415	401 255 6500	MT-GLAZE	100 JA	1/10W
R3416	401 150 6209	MT-GLAZE	1K JA	1/10W
R3417	401 255 6500	MT-GLAZE	100 JA	1/10W
R3422	401 150 5905	MT-GLAZE	10K JA	1/10W
R3423	401 150 5905	MT-GLAZE	10K JA	1/10W
R3424	401 024 6700	CARBON	100 JA	1/6W
R3425	401 150 6209	MT-GLAZE	1K JA	1/10W
R3426	401 024 6700	CARBON	100 JA	1/6W
R3434	401 162 4002	MT-GLAZE	560 JA	1/10W
R3435	401 150 5806	MT-GLAZE	100K JA	1/10W
R3436	401 162 4002	MT-GLAZE	560 JA	1/10W
R3437	401 150 5806	MT-GLAZE	100K JA	1/10W
R3458	401 150 6209	MT-GLAZE	1K JA	1/10W
R3460	401 150 6209	MT-GLAZE	1K JA	1/10W
R3601	401 150 5905	MT-GLAZE	10K JA	1/10W
R3602	401 150 5905	MT-GLAZE	10K JA	1/10W
R3603	401 025 7409	CARBON	220 JA	1/6W
R3604	401 025 7409	CARBON	220 JA	1/6W
R3608	401 255 6005	MT-GLAZE	1M JA	1/10W
R3609	401 150 5806	MT-GLAZE	100K JA	1/10W
R3611	401 256 7308	MT-GLAZE	6.8K JA	1/10W
R3613	401 265 4008	MT-GLAZE	62K JA	1/10W
R3622	401 162 3104	MT-GLAZE	3.3K JA	1/10W
R3623	401 255 6401	MT-GLAZE	3K JA	1/10W
R3628	401 256 7605	MT-GLAZE	3.9K JA	1/10W

CRYSTAL/FILTERS

X2809	645 046 9213	OSC, CERAMIC 503.0KHZ
X8219	645 026 8434	OSC, CRYSTAL 8.000MHZ

MISCELLANEOUS

A100	610 317 4808	ASSY, PWB, MAIN-H3EMM
★ A101	645 064 2555	TUNER, TU/IF
K1002	645 063 9623	JACK, RCA-8(9-1)
SP901	652 001 1311	SPEAKER, 8-5W
SP902	652 001 1311	SPEAKER, 8-5W

Schematic Location	Part No.	Description		

POWER / DEFLECTION PC BOARD

CAPACITORS

C401	403 050 6600	ELECT	3.3U M	50V
C402	403 148 1609	ELECT	470U M	50V
★ C403	403 247 5003	CERAMIC	470P K	1K
★ C404	403 222 1907	CERAMIC	2200P K	1K
	403 263 6305	CERAMIC	2200P K	1K
C405	403 334 4209	ELECT	2200U M	16V
C408	403 364 5405	CERAMIC	150P K	1K
★ C411	403 344 9508	MT-POLYPRO	3600P H	1.5K
★ C412	403 351 6527	MT-POLYPRO	5100P H	1.5K
★ C414	403 076 0507	CERAMIC	2200P K	500V
★ C415	403 324 3106	CERAMIC	820P K	3K
★ C416	403 076 1405	CERAMIC	2700P K	500V
★ C417	403 036 5207	CERAMIC	68P J	500V
C421	404 091 6406	ELECT	220U M	6.3V
★ C422	403 066 6106	MT-POLYEST	0.47U J	250V
★ C423	403 346 6822	MT-POLYPRO	0.2U J	250V
	403 371 0608	MT-POLYPRO	0.2U J	250V
	403 372 6500	MT-POLYPRO	0.2 U J	250V
★ C424	403 349 3105	MT-POLYPRO	0.12U J	250V
	403 376 2706	MT-POLYPRO	0.12U J	250V
	403 372 6203	MT-POLYPRO	0.12U J	250V
★ C426	403 263 6404	CERAMIC	3900P K	1K
	403 276 0406	CERAMIC	3900P K	1K
C460	403 183 7901	MT-POLYEST	0.1U K	100V
★ C462	403 083 8107	POLYPRO	0.01U J	630V
★ C463	403 083 8107	POLYPRO	0.01U J	630V
★ C464	403 188 0808	MT-POLYEST	2.2U J	100V
★ C465	403 188 0808	MT-POLYEST	2.2U J	100V
★ C466	403 188 0808	MT-POLYEST	2.2U J	100V
★ C467	403 393 4905	MT-POLYPRO	0.047U K	400V
C468	403 258 8505	NP-ELECT	22U M	16V
★ C470	403 083 8800	POLYPRO	0.012U J	630V
C471	403 063 7809	POLYESTER	0.082U K	50V
	403 312 3507	POLYESTER	0.082U K	50V
C472	403 059 6205	POLYESTER	0.022U K	50V
	403 312 0506	POLYESTER	0.022U K	50V
C482	403 259 9907	ELECT	47U M	160V
C483	403 059 3808	POLYESTER	2200P K	50V
	403 312 0308	POLYESTER	2200P K	50V
C484	404 084 4204	ELECT	4.7U M	50V
C493	404 056 5307	NP-ELECT	2.2U M	100V
C504	403 209 7205	ELECT	2200U M	25V
C505	403 148 0404	ELECT	1000U M	25V
C507	403 148 1401	ELECT	220U M	50V
C508	403 161 8302	MT-POLYEST	0.47U K	100V
C510	403 036 2503	CERAMIC	47P K	500V
C513	403 075 8009	CERAMIC	0.01U K	500V
C581	404 085 4708	NP-ELECT	10U M	16V
★ C608	403 247 5003	CERAMIC	470P K	1K
	403 269 1809	CERAMIC	470P K	1K
	403 232 0501	CERAMIC	470P K	1K

Schematic Location	Part No.	Description
★ C609	404 096 2809	ELECT 680U M 200V
C613	403 148 1708	ELECT 100U M 35V
★ C614	403 083 4307	POLYPRO 0.022U J 400V
C615	403 138 9905	POLYESTER 470P J 50V
	403 276 9102	POLYESTER 470P J 50V
C616	403 057 5309	POLYESTER 1200P J 50V
	403 179 3702	POLYESTER 1200P J 50V
C619	403 069 8305	CERAMIC 0.01U Z 50V
C622	403 233 0500	ELECT 3300U M 25V
C624	404 096 2403	ELECT 470U M 160V
C625	403 266 5008	CERAMIC 2700P K 1K
	403 232 0402	CERAMIC 2700P K 1K
C626	403 196 4201	ELECT 3300U M 16V
C628A	404 096 2403	ELECT 470U M 160V
C629	403 196 4201	ELECT 3300U M 16V
★ C633	404 088 7904	CERAMIC 3300P M 250V
	404 088 8000	CERAMIC 3300P M 250V
C640	404 092 1905	ELECT 100U M 50V
C641	403 271 9602	CERAMIC 1000P K 1K
	403 262 1806	CERAMIC 1000P K 1K
C642	404 092 2001	ELECT 470U M 50V
C644	404 074 9103	ELECT 220U M 160V
C656	404 087 3105	ELECT 220 M 50V
★ C686	403 247 5003	CERAMIC 470P K 1K
	403 269 1809	CERAMIC 470P K 1K
	403 232 0501	CERAMIC 470P K 1K

DIODES

D401	407 222 4401	ZENER DIODE 1Z150
D402	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D411	407 142 5908	DIODE FMP-G3FS
D412	407 157 0806	DIODE RS4FS LF-L1
D413	407 063 9603	ZENER DIODE MTZJ9.1A
	407 099 6003	ZENER DIODE MTZJ9.1B
★ D421	407 158 1307	ZENER DIODE HZ11B2L
★ D422	407 158 1307	ZENER DIODE HZ11B2L
D428	407 099 8007	ZENER DIODE MTZJ20C
	407 055 1905	ZENER DIODE RD20EB3
D429	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D460	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D461	407 221 5003	DIODE FMC-G28SL
D462	407 099 6102	ZENER DIODE MTZJ10B
D467	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D468	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473

Schematic Location	Part No.	Description
D481	407 124 6404	DIODE ERA18-04
	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
D482	407 011 4407	DIODE TVR1G
D486	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D501	407 005 7308	DIODE EM01Z
	407 005 8602	DIODE ERA15-02
	407 088 6502	DIODE MPG06D
D502	407 118 2207	ZENER DIODE 1Z75
D503	407 100 0204	ZENER DIODE MTZJ36A
	407 100 0303	ZENER DIODE MTZJ36B
	407 100 0402	ZENER DIODE MTZJ36C
D504	407 100 0204	ZENER DIODE MTZJ36A
	407 100 0303	ZENER DIODE MTZJ36B
	407 100 0402	ZENER DIODE MTZJ36C
D511	407 118 2207	ZENER DIODE 1Z75
D512	407 118 2207	ZENER DIODE 1Z75
D513	407 063 8606	ZENER DIODE MTZJ5.1A
	407 099 5204	ZENER DIODE MTZJ5.1B
	407 063 8705	ZENER DIODE MTZJ5.1C
D514	407 063 8606	ZENER DIODE MTZJ5.1A
	407 099 5204	ZENER DIODE MTZJ5.1B
	407 063 8705	ZENER DIODE MTZJ5.1C
D581	407 099 6003	ZENER DIODE MTZJ9.1B
	407 057 9701	ZENER DIODE RD9.1EB2
D582	407 012 4406	DIODE 1SS133
★ D612	407 231 2801	PHOTO COUPLE PC123YC2
D613	407 006 0100	DIODE ERA91-02
D614	407 006 0100	DIODE ERA91-02
D615	407 099 5006	ZENER DIODE MTZJ4.7A
	407 056 6008	ZENER DIODE RD4.7EB2
D616	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D617	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
D618	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D621A	407 154 2704	DIODE YG901C2-LB
D623	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D624	407 168 6507	DIODE FMX-G12S
D625	407 191 3900	DIODE FML-G16S
D627	407 168 6507	DIODE FMX-G12S
D631	407 007 7603	DIODE EU2
	407 007 7801	DIODE EU2Z
D635	407 099 9509	ZENER DIODE MTZJ30B
D641	407 007 7306	DIODE EU01Z
D642	407 099 9509	ZENER DIODE MTZJ30B
	407 056 0204	ZENER DIODE RD30EB2
D643	407 222 4401	ZENER DIODE 1Z150

Schematic Location	Part No.	Description
D649	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D652	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D656	407 106 2806	DIODE RU3YX
D695	407 129 3002	DIODE ERA22-06
	407 007 7108	DIODE EU01A
	INTEGRATED CIRCUITS	
★ IC501	409 374 0607	IC LA7846N
★ IC601	409 169 5800	IC SE140NL
IC602	409 444 0308	IC STR-F6626
	COILS	
L411	610 236 6440	JUMPER LEAD
L413	610 078 5946	PIPE CORE
L414	652 000 1282	CORE, PIPE
L416	652 000 1268	CORE, PIPE
L417	652 000 1268	CORE, PIPE
★ L421	645 068 1950	COIL, LINEARITY
L460	645 020 4043	INDUCTOR, 1500U
★ L461	645 038 5025	INDUCTOR, 148U
	645 058 0444	INDUCTOR, 145U
★ L462	645 038 5025	INDUCTOR, 148U
	645 058 0444	INDUCTOR, 145U
L463	610 078 5946	PIPE CORE
L464	610 078 5946	PIPE CORE
L610	610 078 5946	PIPE CORE
L613	610 078 5946	PIPE CORE
L621	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L623	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L624	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L625	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L628	610 078 5946	PIPE CORE
	652 000 1725	CORE, PIPE
L641	645 007 8156	INDUCTOR, 82U K
	645 005 5423	INDUCTOR, 82U K
	TRANSISTORS	
Q401	405 136 0205	TR 2SC5291S-AY
	405 136 0304	TR 2SC5291T-AY
★ Q402	406 017 4503	TR TT2140LS-YB11
Q460	405 029 6307	TR 2SB817-E
Q462	405 018 0507	TR 2SC3332-R
	405 018 0606	TR 2SC3332-S
Q581	405 003 5906	TR 2SA1319-R
	405 003 6002	TR 2SA1319-S
	405 003 6101	TR 2SA1319-T

Schematic Location	Part No.	Description
Q582	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q642	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA

RESISTORS

R402	401 027 2303	CARBON	560 JA	1/6W
R405	401 027 2600	CARBON	5.6K JA	1/6W
★ R406	401 064 8702	OXIDE-MT	1K JA	2W
★ R407	401 068 2607	OXIDE-MT	47 JA	2W
★ R409	401 069 5607	OXIDE-MT	8.2 JA	2W
★ R410	401 062 5109	OXIDE-MT	56 JA	1W
★ R411	401 063 2008	OXIDE-MT	6.8K JA	1W
R412	401 024 9701	CARBON	12K JA	1/6W
★ R413	402 089 1006	OXIDE-MT	3.9 JB	7W
R416	401 012 4503	CARBON	100 JA	1/4W
★ R421	401 148 7201	MT-FILM	1.8K FA	1/6W
★ R422	401 052 6802	MT-FILM	10K FA	1/6W
★ R423	401 053 2605	MT-FILM	3.3K FA	1/6W
R424	401 068 3703	OXIDE-MT	470 JA	2W
R428	401 025 1902	CARBON	15K JA	1/6W
R429	401 025 5405	CARBON	2.2 JA	1/6W
★ R461	402 002 9805	FUSIBLE RES	1 J-	2W
	402 097 3306	FUSIBLE RES	1 J-	2W
R462	401 202 1909	MT-FILM	680 FA	1/6W
R463	401 023 3700	CARBON	82K JA	1/4W
R464	401 097 3903	MT-FILM	39K FA	1/6W
R466	401 053 3008	MT-FILM	470 FA	1/6W
R467	401 053 2605	MT-FILM	3.3K FA	1/6W
R468	401 052 6505	MT-FILM	1K FA	1/6W
R470	401 025 2503	CARBON	1.5M JA	1/6W
R475	401 156 8504	MT-FILM	33K FA	1/6W
★ R480	401 006 7701	CARBON	1 JB	1/2W
★ R481	401 006 7701	CARBON	1 JB	1/2W
R482	401 021 0701	CARBON	56 JA	1/4W
R487	401 008 2605	CARBON	180K JA	1/2W
R488	401 021 3009	CARBON	5.6K JA	1/4W
R491	401 012 5708	CARBON	1K JA	1/4W
R493	401 019 2601	CARBON	39K GA	1/4W

Schematic Location	Part No.	Description		
R494	401 019 2601	CARBON	39K GA	1/4W
R495	401 024 9602	CARBON	12K GA	1/6W
★ R497	401 066 3002	OXIDE-MT	2.2 JA	2W
R501	401 027 2501	CARBON	5.6K GA	1/6W
★ R503	402 002 3803	FUSIBLE RES	1 J-	1W
	402 097 4501	FUSIBLE RES	1 J-	1W
★ R504	402 061 0201	FUSIBLE RES	1.5 J-	1/2W
	402 096 6001	FUSIBLE RES	1.5 J-	1/2W
★ R506	401 069 2804	OXIDE-MT	680 JA	2W
R507	401 007 6901	CARBON	15 JA	1/2W
★ R508	401 064 5701	OXIDE-MT	1.8 JA	2W
R509	401 053 4203	MT-FILM	5.6K FA	1/6W
R511	401 011 9004	CARBON	1 JB	1/4W
R512	401 027 2501	CARBON	5.6K GA	1/6W
R513	401 053 4203	MT-FILM	5.6K FA	1/6W
R581	401 014 6109	CARBON	150K JA	1/4W
R582	401 024 7400	CARBON	10K JA	1/6W
R583	401 024 7400	CARBON	10K JA	1/6W
R584	401 014 6109	CARBON	150K JA	1/4W
R585	401 025 4606	CARBON	18K JA	1/6W
★ R604	401 068 5509	OXIDE-MT	47K JA	2W
★ R613	401 238 3304	OXIDE-MT	0.18 JA	2W
★ R615	401 238 3304	OXIDE-MT	0.18 JA	2W
R616	401 014 2903	CARBON	150 JA	1/4W
R617	401 018 3807	CARBON	3.3K JA	1/4W
R618	401 024 7004	CARBON	1K JA	1/6W
R619	401 016 3809	CARBON	2.2K JA	1/4W
R621	401 026 9907	CARBON	4.7K JA	1/6W
R622	401 022 2001	CARBON	680 JB	1/4W
R623	401 027 8602	CARBON	8.2K JA	1/6W
R624	401 024 7400	CARBON	10K JA	1/6W
★ R635	401 065 4604	OXIDE-MT	12K JA	2W
R640	401 024 7707	CARBON	100K JA	1/6W
R641	401 011 2708	CARBON	68K JA	1/2W
R642	401 025 8208	CARBON	22K JA	1/6W
R646	401 024 7400	CARBON	10K JA	1/6W

TRANSFORMERS

T401	645 041 1083	TRANS, DRIVE
	652 001 2868	TRANS, DRIVE
	652 001 3643	TRANS, DRIVE
★ T402	645 075 7174	TRANS, FLYBACK
★ T601	645 069 7678	TRANS, POWER, PULSE

MISCELLANEOUS

A401	610 319 4363	ASSY, PWB, P/D-H3JAM

Schematic Location	Part No.	Description

FRONT PC BOARD

CAPACITORS

★ C600	403 076 4000	CERAMIC	4700P K	500V
★ C601	404 096 0706	MT-POLYEST	0.22U M	275V
★ C602	403 075 7101	CERAMIC	1000P K	500V
★ C604	403 075 7101	CERAMIC	1000P K	500V
★ C610	404 096 0508	MT-POLYEST	0.1U M	275V
C688	404 084 2804	ELECT	100U M	16V
C689	403 069 8305	CERAMIC	0.01U Z	50V
C1613	404 095 1704	ELECT	2200U M	16V
C1614	403 069 8305	CERAMIC	0.01U Z	50V
C1615	404 084 2606	ELECT	470U M	10V
C1618	403 069 8305	CERAMIC	0.01U Z	50V
C1620	403 069 8305	CERAMIC	0.01U Z	50V
C1902	404 084 2705	ELECT	10U M	16V
C1903	404 084 2408	ELECT	470U M	6.3V

DIODES

★ D601	407 124 9801	DIODE RBV-608
D683	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D687	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D1611	407 012 4406	DIODE 1SS133
D1612	407 005 8602	DIODE ERA15-02
	407 124 5605	DIODE RMPG06D
D1613	407 005 8602	DIODE ERA15-02
	407 124 5605	DIODE RMPG06D
D1614	407 005 8602	DIODE ERA15-02
	407 124 5605	DIODE RMPG06D
D1615	407 005 8602	DIODE ERA15-02
	407 124 5605	DIODE RMPG06D
D1901	407 063 9306	ZENER DIODE MTZJ7.5C
	407 057 6502	ZENER DIODE RD7.5EB3

INTEGRATED CIRCUITS

IC1611	409 528 6202	IC PQ050ES1MXP

COILS

★ LF601	645 012 0589	LINE FILTER
	645 026 8274	LINE FILTER
★ LF602	645 012 0589	LINE FILTER
	645 026 8274	LINE FILTER
L1901	645 008 2894	INDUCTOR, 5.6U K
	645 016 3104	INDUCTOR, 5.6U K
★ L901	645 073 7053	ASSY, COIL, DEGAUSSING

Schematic Location	Part No.	Description
	TRANSISTORS	
Q688	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3208	TR 2SA564A-R(CU)
	405 151 3304	TR 2SA608NF-NPA
	405 006 1806	TR 2SA933S-R
Q1611	405 016 9403	TR 2SC3068
	RESISTORS	
★ R601	402 097 5607	WIRE WOUND 1 KA 15W
★ R602	401 069 3702	OXIDE-MT 6.8K JA 2W
★ R603	402 000 1603	SOLID 3.3M MA 1/2W
	402 099 2901	SOLID 3.3M KA 1/2W
	402 088 1502	RESISTER 3.3M JA 1/2W
	402 090 2108	RESISTER 3.3M JA 1/2W
R686	401 013 4205	CARBON 120 JA 1/4W
R687	401 025 8208	CARBON 22K JA 1/6W
R688	401 024 9701	CARBON 12K JA 1/6W
R1611	401 027 2600	CARBON 5.6K JA 1/6W
R1612	401 026 4605	CARBON 33K JA 1/6W
R1901	401 024 7400	CARBON 10K JA 1/6W
R1902	401 024 7004	CARBON 1K JA 1/6W
R1903	401 025 4200	CARBON 1.8K JA 1/6W
R1904	401 025 7805	CARBON 2.2K JA 1/6W
R1905	401 026 7002	CARBON 3.9K JA 1/6W
R1906	401 027 2600	CARBON 5.6K JA 1/6W
R1909	401 024 7004	CARBON 1K JA 1/6W
R1910	401 024 7004	CARBON 1K JA 1/6W
	SWITCHES	
SW1901	645 006 9673	SWITCH, PUSH (POWER)
	645 027 7382	SWITCH, PUSH (POWER)
	645 052 2284	SWITCH, PUSH (POWER)
SW1902	645 006 9673	SWITCH, PUSH (VOL +)
	645 027 7382	SWITCH, PUSH (VOL +)
	645 052 2284	SWITCH, PUSH (VOL +)
SW1903	645 006 9673	SWITCH, PUSH (VOL –)
	645 027 7382	SWITCH, PUSH (VOL –)
	645 052 2284	SWITCH, PUSH (VOL –)
SW1904	645 006 9673	SWITCH, PUSH (CH ▲)
	645 027 7382	SWITCH, PUSH (CH ▲)
	645 052 2284	SWITCH, PUSH (CH ▲)
SW1905	645 006 9673	SWITCH, PUSH (CH ▼)
	645 027 7382	SWITCH, PUSH (CH ▼)
	645 052 2284	SWITCH, PUSH (CH ▼)
	TRANSFORMERS	
★ T681	645 065 8938	TRANS, POWER
	MISCELLANEOUS	
A1900	610 319 4417	ASSY, PWB, FRONT-H3EMM
A1901	645 047 6228	UNIT, REMOCON RECEIVER
★ F601	423 030 9704	FUSE 125V 6A
F601A	645 000 5077	HOLDER, FUSE

Schematic Location	Part No.	Description
	645 016 0479	HOLDER, FUSE
	645 070 5434	HOLDER, FUSE
F601B	645 000 5077	HOLDER, FUSE
	645 016 0479	HOLDER, FUSE
	645 070 5434	HOLDER, FUSE
★ PS601	408 046 5209	TH PTDAA1BF3R0Q100
★ RL601	645 040 3583	RELAY
	645 059 0306	RELAY
★ RL602	645 040 3583	RELAY
	645 059 0306	RELAY
★ VA601	408 018 9808	VARISTOR ENC471D-14AS
★ W601	645 023 1698	CORD, POWER
	645 056 9548	CORD, POWER-2.05MK

AV VIDEO PC BOARD

	CAPACITORS			
C1001	404 084 2705	ELECT	10U M	16V
C1002	404 084 4006	ELECT	2.2U M	50V
C1003	404 084 4006	ELECT	2.2U M	50V
C1004	404 084 2705	ELECT	10U M	16V
C1005	404 084 4006	ELECT	2.2U M	50V
C1006	404 084 4006	ELECT	2.2U M	50V
C1008	404 084 4006	ELECT	2.2U M	50V
C1009	404 084 4006	ELECT	2.2U M	50V
C1054	403 279 0106	CERAMIC	0.1U Z	25V
C1055	404 084 2705	ELECT	10U M	16V
C1056	403 235 6203	CERAMIC	0.01U Z	50V
C1057	403 279 0106	CERAMIC	0.1U Z	25V
C1059	404 084 2705	ELECT	10U M	16V
C1201	403 237 8007	MT-COMPO	0.1U J	50V
C1204	404 084 2606	ELECT	470U M	10V
C1205	404 088 5702	ELECT	22U M	16V
C1206	403 235 4704	CERAMIC	330P K	50V
C1207	403 235 4704	CERAMIC	330P K	50V
C1211	403 235 6203	CERAMIC	0.01U Z	50V
C1214	403 235 4704	CERAMIC	330P K	50V
C1215	403 235 4704	CERAMIC	330P K	50V
C1217	404 085 5606	NP-ELECT	22U M	16V
C1229	403 279 0106	CERAMIC	0.1U Z	25V
C1231	404 084 2606	ELECT	470U M	10V
C1234	403 279 0106	CERAMIC	0.1U Z	25V
C1235	403 279 0106	CERAMIC	0.1U Z	25V
C1236	404 084 2606	ELECT	470U M	10V
C1241	403 279 0106	CERAMIC	0.1U Z	25V
C2301	404 084 2705	ELECT	10U M	16V
C2302	403 279 0106	CERAMIC	0.1U Z	25V
C2313	404 084 2903	ELECT 1	000U M	16V
C2314	404 084 2903	ELECT 1	000U M	16V
C2315	403 279 0106	CERAMIC	0.1U Z	25V
C2316	403 279 0106	CERAMIC	0.1U Z	25V
C2317	404 085 5002	ELECT	47U M	25V
C2318	404 085 4203	ELECT	100U M	10V
C2319	403 279 0106	CERAMIC	0.1U Z	25V
C2320	403 279 0106	CERAMIC	0.1U Z	25V
C2321	404 084 2507	ELECT	47U M	10V

Schematic Location	Part No.	Description		
C2323	404 092 9208	ELECT	1000U M	6.3V
C2324	404 092 9208	ELECT	1000U M	6.3V
C2325	403 224 5705	CERAMIC	1000P K	50V
C2326	403 343 4603	CERAMIC	0.022U K	50V
C2327	401 150 6001	MT-GLAZE	0.000 ZA	1/10W
C2328	404 084 3306	ELECT	470U M	16V
C2329	403 279 0106	CERAMIC	0.1U Z	25V
C2330	404 084 2903	ELECT 1	000U M	16V
C2331	404 084 2705	ELECT	10U M	16V
C2332	404 084 3801	ELECT	1U M	50V
C2333	403 056 7304	POLYESTER	1000P J	50V
	403 178 9200	POLYESTER	1000P J	50V
C2334	403 224 6108	CERAMIC	0.01U K	50V
C2336	403 235 0409	CERAMIC	68P J	50V
C2339	404 084 3108	ELECT	330U M	16V
C2341	404 085 5002	ELECT	47U M	25V
C2342	403 354 2803	POLYPRO	0.1U J	50V
C2343	403 237 8007	MT-COMPO	0.1U J	50V
C2344	403 237 8007	MT-COMPO	0.1U J	50V
C2345	403 279 0106	CERAMIC	0.1U Z	25V
C2346	404 084 3306	ELECT	470U M	16V
C2372	404 084 3207	ELECT	47U M	16V
C2373	403 279 0106	CERAMIC	0.1U Z	25V
C2380	404 084 3801	ELECT	1U M	50V
C2500	404 091 6604	ELECT	4.7U M	25V
C2501	403 279 0106	CERAMIC	0.1U Z	25V
C2502	404 084 2705	ELECT	10U M	16V
C2503	403 234 9007	CERAMIC	5P C	50V
C2503B	403 234 9007	CERAMIC	5P C	50V
C2503R	403 234 9007	CERAMIC	5P C	50V
C2505	403 279 0106	CERAMIC	0.1U Z	25V
C2506	404 084 2804	ELECT	100U M	16V
C2507	403 279 0106	CERAMIC	0.1U Z	25V
C2508	403 279 0106	CERAMIC	0.1U Z	25V
C2509	403 279 0106	CERAMIC	0.1U Z	25V
C2510	403 063 2309	POLYESTER	0.068U K	50V
	403 179 0107	POLYESTER	0.068U K	50V
	403 312 3002	POLYESTER	0.068U K	50V
C2511	403 224 5606	CERAMIC	2700P K	50V
C2512	403 235 0607	CERAMIC	100P J	50V
C2513	404 084 3207	ELECT	47U M	16V
C2515	404 084 2705	ELECT	10U M	16V
C2521	403 279 0106	CERAMIC	0.1U Z	25V
C2522	403 279 0106	CERAMIC	0.1U Z	25V
C2523	403 279 0106	CERAMIC	0.1U Z	25V
C2524	403 279 0106	CERAMIC	0.1U Z	25V
C2525	403 279 0106	CERAMIC	0.1U Z	25V
C2526	403 279 0106	CERAMIC	0.1U Z	25V
C2527	403 325 4706	CERAMIC	0.047U K	25V
C2530	403 256 0808	MT-COMPO	0.47U J	50V
C2531	404 084 4006	ELECT	2.2U M	50V
C2532	403 279 0106	CERAMIC	0.1U Z	25V
C2533	404 092 9208	ELECT	1000U M	6.3V
C2534	403 237 8007	MT-COMPO	0.1U J	50V
C2535	403 237 8007	MT-COMPO	0.1U J	50V
C2536	403 237 8007	MT-COMPO	0.1U J	50V

Schematic Location	Part No.	Description		
C2537	403 279 0106	CERAMIC	0.1U Z	25V
C2538	403 279 0106	CERAMIC	0.1U Z	25V
C2539	403 279 0106	CERAMIC	0.1U Z	25V
C2543	404 087 1200	ELECT	0.1U M	50V
C2544	404 087 1200	ELECT	0.1U M	50V
C2545	404 087 1200	ELECT	0.1U M	50V

DIODES

D1054	407 206 5608	ZENER DIODE UDZS10B TE-17
D1057	407 206 5608	ZENER DIODE UDZS10B TE-17
D1211	407 206 5608	ZENER DIODE UDZS10B TE-17
D1212	407 206 5608	ZENER DIODE UDZS10B TE-17
D2301	407 092 9526	DIODE SB07-03C-TB
D2302	407 149 0807	DIODE 1SS355 TE-17
D2303	407 149 0807	DIODE 1SS355 TE-17
D2320	407 149 0807	DIODE 1SS355 TE-17
D2321	407 149 0807	DIODE 1SS355 TE-17
D2330	407 092 9526	DIODE SB07-03C-TB
D2342	407 092 9526	DIODE SB07-03C-TB
D2343	407 149 0807	DIODE 1SS355 TE-17
D2501	407 206 5608	ZENER DIODE UDZS10B TE-17
D2502	407 206 5608	ZENER DIODE UDZS10B TE-17
D2503	407 206 5608	ZENER DIODE UDZS10B TE-17
D2510	407 149 0807	DIODE 1SS355 TE-17
D2511	407 149 0807	DIODE 1SS355 TE-17

INTEGRATED CIRCUITS

IC1201	409 419 5406	IC MM1313BD
IC2301	409 476 8600	IC NJM319M-TE2
IC2303	409 124 5708	IC L78M09T-TL
IC2304	409 398 1901	IC L88MS05TL-TL
★ IC2501	409 555 0709	IC CXA2180Q
IC2502	409 528 6202	IC PQ050ES1MXP

COILS

L1201	645 008 2276	INDUCTOR, 22U K
L1236	645 040 3101	INDUCTOR, 3.3U M
	645 062 2823	INDUCTOR, 3.3U M
L2301	645 040 3101	INDUCTOR, 3.3U M
	645 062 2823	INDUCTOR, 3.3U M
L2340	645 008 2276	INDUCTOR, 22U K
L2341	645 008 2009	INDUCTOR, 10U K
L2501	645 008 2009	INDUCTOR, 10U K
L2517	645 008 2009	INDUCTOR, 10U K
L2520	645 008 2009	INDUCTOR, 10U K

TRANSISTORS

Q1223	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB

Schematic Location	Part No.	Description
Q1223 (Cont.)	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q1224	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q1229	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q1234	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
Q1234	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q1237	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q1241	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2320	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2330	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S

Schematic Location	Part No.	Description
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2331	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2333	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q2501	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q2502	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q2503	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q2504	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S

Schematic Location	Part No.	Description
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q2505	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F
Q2506	405 014 4509	TR 2SC2412K-T-96-R
	405 014 4608	TR 2SC2412K-T-96-S
	405 015 8724	TR 2SC2812-L6-TB
	405 015 8922	TR 2SC2812-L7-TB
	405 163 1602	TR 2SC2812N-L6-TB
	405 163 1701	TR 2SC2812N-L7-TB
	405 173 9803	TR 2SC3928A1R
	405 173 9902	TR 2SC3928A1S
Q2513	405 134 5925	TR 2SA1037AK T146 R
	405 147 2205	TR 2SA1037AK T146 S
	405 002 0308	TR 2SA1037K-T-96-R
	405 002 0407	TR 2SA1037K-T-96-S
	405 002 6726	TR 2SA1179-M6
	405 002 6924	TR 2SA1179-M7-TB
	405 163 1503	TR 2SA1179N-M6-TB
	405 163 2708	TR 2SA1179N-M7-TB
	405 173 9605	TR 2SA1235A1E
	405 173 9704	TR 2SA1235A1F

RESISTORS

R1001	401 256 2709	MT-GLAZE	75 JA 1/10W
R1002	401 162 2909	MT-GLAZE	220 JA 1/10W
R1003	401 162 3807	MT-GLAZE	470K JA 1/10W
R1004	401 162 2800	MT-GLAZE	1.8K JA 1/10W
R1005	401 162 3807	MT-GLAZE	470K JA 1/10W
R1006	401 162 2800	MT-GLAZE	1.8K JA 1/10W
R1007	401 256 2709	MT-GLAZE	75 JA 1/10W
R1008	401 162 2909	MT-GLAZE	220 JA 1/10W
R1009	401 162 3807	MT-GLAZE	470K JA 1/10W
R1010	401 162 2800	MT-GLAZE	1.8K JA 1/10W
R1011	401 162 3807	MT-GLAZE	470K JA 1/10W
R1012	401 162 2800	MT-GLAZE	1.8K JA 1/10W
R1015	401 162 3807	MT-GLAZE	470K JA 1/10W
R1016	401 162 2800	MT-GLAZE	1.8K JA 1/10W
R1017	401 162 3807	MT-GLAZE	470K JA 1/10W
R1018	401 162 2800	MT-GLAZE	1.8K JA 1/10W
R1051	401 256 2709	MT-GLAZE	75 JA 1/10W
R1052	401 162 2909	MT-GLAZE	220 JA 1/10W
R1056	401 256 2709	MT-GLAZE	75 JA 1/10W
R1057	401 162 2909	MT-GLAZE	220 JA 1/10W
R1058	401 162 3005	MT-GLAZE	22K JA 1/10W
R1059	401 150 6209	MT-GLAZE	1K JA 1/10W
R1060	401 256 2709	MT-GLAZE	75 JA 1/10W
R1061	401 162 2909	MT-GLAZE	220 JA 1/10W
R1062	401 256 2709	MT-GLAZE	75 JA 1/10W
R1063	401 162 2909	MT-GLAZE	220 JA 1/10W
R1064	401 162 3005	MT-GLAZE	22K JA 1/10W
R1065	401 150 6209	MT-GLAZE	1K JA 1/10W
R1204	401 256 4109	MT-GLAZE	56 JA 1/10W
R1206	401 150 6100	MT-GLAZE	2.2K JA 1/10W
R1207	401 150 6100	MT-GLAZE	2.2K JA 1/10W
R1208	401 150 6001	MT-GLAZE	0.000 ZA 1/10W
R1214	401 255 6500	MT-GLAZE	100 JA 1/10W
R1215	401 255 6500	MT-GLAZE	100 JA 1/10W
R1216	401 255 6500	MT-GLAZE	100 JA 1/10W
R1217	401 255 6500	MT-GLAZE	100 JA 1/10W
R1219	401 256 4109	MT-GLAZE	56 JA 1/10W
R1220	401 256 4109	MT-GLAZE	56 JA 1/10W
R1221	401 150 6209	MT-GLAZE	1K JA 1/10W
R1222	401 150 6209	MT-GLAZE	1K JA 1/10W
R1223	401 150 6209	MT-GLAZE	1K JA 1/10W
R1224	401 150 6209	MT-GLAZE	1K JA 1/10W
R1227	401 256 4109	MT-GLAZE	56 JA 1/10W
R1230	401 150 6209	MT-GLAZE	1K JA 1/10W
R1231	401 256 4109	MT-GLAZE	56 JA 1/10W
R1233	401 256 4109	MT-GLAZE	56 JA 1/10W
R1234	401 256 4109	MT-GLAZE	56 JA 1/10W
R1236	401 150 6100	MT-GLAZE	2.2K JA 1/10W
R1237	401 256 4109	MT-GLAZE	56 JA 1/10W
R1239	401 150 6100	MT-GLAZE	2.2K JA 1/10W
R1240	401 256 4109	MT-GLAZE	56 JA 1/10W
R1242	401 256 4109	MT-GLAZE	56 JA 1/10W
R1243	401 150 6100	MT-GLAZE	2.2K JA 1/10W
R2301	401 255 6500	MT-GLAZE	100 JA 1/10W
R2302	401 256 0101	MT-GLAZE	8.2K JA 1/10W
R2303	401 150 6209	MT-GLAZE	1K JA 1/10W
R2304	401 150 6209	MT-GLAZE	1K JA 1/10W
R2305	401 256 0101	MT-GLAZE	8.2K JA 1/10W
R2306	401 256 0101	MT-GLAZE	8.2K JA 1/10W
R2309	401 291 7608	MT-GLAZE	10 FA 1 /2W
R2310	401 150 5905	MT-GLAZE	10K JA 1/10W
R2312	401 255 6500	MT-GLAZE	100 JA 1/10W
R2313	401 255 6500	MT-GLAZE	100 JA 1/10W
R2314	401 255 6500	MT-GLAZE	100 JA 1/10W
R2315	401 255 6500	MT-GLAZE	100 JA 1/10W
R2317	401 264 1909	MT-GLAZE	10K FA 1/10W
R2318	401 256 6004	MT-GLAZE	27K JA 1/10W
R2319	401 256 0101	MT-GLAZE	8.2K JA 1/10W
R2320	401 162 3609	MT-GLAZE	470 JA 1/10W
R2321	401 255 6500	MT-GLAZE	100 JA 1/10W
R2322	401 150 6001	MT-GLAZE	0.000 ZA 1/10W
R2324	401 256 5809	MT-GLAZE	270K JA 1/10W
R2325	401 150 5905	MT-GLAZE	10K JA 1/10W

Schematic Location	Part No.	Description
R2326	401 256 1702	MT-GLAZE 33K JA 1/10W
R2327	401 150 5806	MT-GLAZE 100K JA 1/10W
R2328	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R2329	401 256 7209	MT-GLAZE 18K JA 1/10W
R2330	401 256 7308	MT-GLAZE 6.8K JA 1/10W
R2331	401 256 6608	MT-GLAZE 68K JA 1/10W
R2332	401 162 3005	MT-GLAZE 22K JA 1/10W
R2333	401 256 5908	MT-GLAZE 2.7K JA 1/10W
R2334	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R2335	401 256 3607	MT-GLAZE 15K JA 1/10W
R2336	401 162 4101	MT-GLAZE 5.6K JA 1/10W
R2337	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R2338	401 255 6500	MT-GLAZE 100 JA 1/10W
R2341	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2343	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2344	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2345	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2346	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2347	401 255 6500	MT-GLAZE 100 JA 1/10W
R2348	401 255 6500	MT-GLAZE 100 JA 1/10W
R2349	401 256 5908	MT-GLAZE 2.7K JA 1/10W
R2350	401 255 6500	MT-GLAZE 100 JA 1/10W
R2352	401 255 6500	MT-GLAZE 100 JA 1/10W
R2353	401 256 6905	MT-GLAZE 680 JA 1/10W
R2354	401 162 3104	MT-GLAZE 3.3K JA 1/10W
R2355	401 256 7704	MT-GLAZE 3.9M JA 1/10W
R2356	401 256 7803	MT-GLAZE 390K JA 1/10W
R2357	401 255 6500	MT-GLAZE 100 JA 1/10W
R2358	401 255 6500	MT-GLAZE 100 JA 1/10W
R2360	401 162 3708	MT-GLAZE 4.7K JA 1/10W
R2361	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2362	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2363	401 255 5800	MT-GLAZE 2K JA 1/10W
R2364	401 255 5800	MT-GLAZE 2K JA 1/10W
R2365	401 162 2909	MT-GLAZE 220 JA 1/10W
R2367	401 256 5304	MT-GLAZE 56K JA 1/10W
R2368	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2369	401 150 6100	MT-GLAZE 2.2K JA 1/10W
R2380	401 150 5905	MT-GLAZE 10K JA 1/10W
R2382	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2503	401 152 3206	MT-GLAZE 330 JA 1/10W
R2506	401 306 3809	MT-GLAZE 470FA 1/4W
R2507	401 152 3206	MT-GLAZE 330 JA 1/10W
R2508	401 152 3206	MT-GLAZE 330 JA 1/10W
R2510	401 306 3809	MT-GLAZE 470FA 1/4W
R2511	401 306 3809	MT-GLAZE 470FA 1/4W
R2512	401 150 6209	MT-GLAZE 1K JA 1/10W
R2513	401 255 6500	MT-GLAZE 100 JA 1/10W
R2514	401 256 1702	MT-GLAZE 33K JA 1/10W
R2516	401 150 6209	MT-GLAZE 1K JA 1/10W
R2517	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2520	401 255 6500	MT-GLAZE 100 JA 1/10W
R2521	401 255 6500	MT-GLAZE 100 JA 1/10W
R2522	401 256 1900	MT-GLAZE 3.3M JA 1/10W
R2524	401 255 6500	MT-GLAZE 100 JA 1/10W
R2527	401 265 1700	MT-GLAZE 4.7K FA 1/10W

Schematic Location	Part No.	Description
R2538	401 150 5905	MT-GLAZE 10K JA 1/10W
R2543	401 150 6209	MT-GLAZE 1K JA 1/10W
R2544	401 150 6209	MT-GLAZE 1K JA 1/10W
R2545	401 150 6209	MT-GLAZE 1K JA 1/10W
R2546	401 162 2909	MT-GLAZE 220 JA 1/10W
R2547	401 150 6209	MT-GLAZE 1K JA 1/10W
R2548	401 256 4109	MT-GLAZE 56 JA 1/10W
R2560	401 256 4109	MT-GLAZE 56 JA 1/10W
R2561	401 256 4109	MT-GLAZE 56 JA 1/10W
R2562	401 256 4109	MT-GLAZE 56 JA 1/10W
R2616	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2617	401 150 6001	MT-GLAZE 0.000 ZA 1/10W
R2962	401 255 6500	MT-GLAZE 100 JA 1/10W
R2963	401 255 6500	MT-GLAZE 100 JA 1/10W
R2964	401 255 6500	MT-GLAZE 100 JA 1/10W
R2968	401 162 2909	MT-GLAZE 220 JA 1/10W
R2969	401 162 2909	MT-GLAZE 220 JA 1/10W
R2985	401 150 5806	MT-GLAZE 100K JA 1/10W
R2986	401 150 5806	MT-GLAZE 100K JA 1/10W

MISCELLANEOUS

A1200	610 317 4815	ASSY, PWB, AV VIDEO-H3EMM
K1001	645 057 1725	TERMINAL, BOARD
K1051	645 041 1847	SOCKET, DIN 4PX2
	652 001 3551	SOCKET, DIN 4PX2
X2301	645 076 0693	OSC, CERAMIC 2.696MHZ

CRT SOCKET / VELOCITY MODULATION PC BOARD

CAPACITORS

C710	404 084 2705	ELECT	10U M	16V
C711	403 161 9200	MT-POLYEST	0.22U K	250V
C721	403 161 9200	MT-POLYEST	0.22U K	250V
C731	403 161 9200	MT-POLYEST	0.22U K	250V
C733	403 057 3107	POLYESTER	0.1U K	50V
	403 181 8207	POLYESTER	0.1U K	50V
★ C742	403 245 5609	ELECT	10U M	250V
★ C744	403 077 2807	CERAMIC	1000P Z	2K
C754	404 087 0500	ELECT	220U M	10V
C1705	404 092 1905	ELECT	100U M	50V
C1711	403 057 3107	POLYESTER	0.1U K	50V
	403 181 8207	POLYESTER	0.1U K	50V
C1712	403 062 0504	POLYESTER	0.047U K	50V
	403 179 0909	POLYESTER	0.047U K	50V
C1713	403 071 5606	CERAMIC	220P K	50V
C1715	403 159 7409	MT-POLYEST	0.1U K	250V
C1717	404 084 5508	MT-POLYEST	0.1UJ	63V
	403 237 8007	MT-COMPO	0.1U J	50V
C1718	404 084 2507	ELECT	47U M	10V
C1719	403 259 9006	ELECT	10U M	160V
C1721	404 084 3801	ELECT	1U M	50V

Schematic Location	Part No.	Description
C1722	403 222 0603	ELECT 22U M 160V
C1723	403 075 8009	CERAMIC 0.01U K 500V
C1724	403 071 5606	CERAMIC 220P K 50V
C1748	403 069 8305	CERAMIC 0.01U Z 50V
C1749	404 084 4303	ELECT 47U M 50V
C1750	403 069 8305	CERAMIC 0.01U Z 50V
C1751	404 084 3900	ELECT 10U M 50V
	DIODES	
D711	407 006 3903	DIODE ERB43-04
	407 011 4407	DIODE TVR1G
D712	407 006 3903	DIODE ERB43-04
	407 011 4407	DIODE TVR1G
D721	407 006 3903	DIODE ERB43-04
	407 011 4407	DIODE TVR1G
D722	407 006 3903	DIODE ERB43-04
	407 011 4407	DIODE TVR1G
D731	407 006 3903	DIODE ERB43-04
	407 011 4407	DIODE TVR1G
D732	407 006 3903	DIODE ERB43-04
	407 011 4407	DIODE TVR1G
D742	407 124 6404	DIODE ERA18-04
	407 007 6606	DIODE ES1
	407 124 5506	DIODE RMPG06G
D754	408 008 2406	DIODE 1N4148
	407 013 4306	DIODE 1S2076A
	407 013 7109	DIODE 1S2473
D755	407 065 1308	ZENER DIODE MTZJ3.6B
D761	407 099 6607	ZENER DIODE MTZJ12B
	407 054 3207	ZENER DIODE RD12EB2
D762	407 099 6607	ZENER DIODE MTZJ12B
	407 054 3207	ZENER DIODE RD12EB2
D763	407 099 6607	ZENER DIODE MTZJ12B
	407 054 3207	ZENER DIODE RD12EB2
D1705	407 108 5300	DIODE SB07-03N
D1707	407 108 5300	DIODE SB07-03N
D1708	407 012 4406	DIODE 1SS133
D1750	407 012 4406	DIODE 1SS133
D1751	407 012 4406	DIODE 1SS133
D1752	407 012 4406	DIODE 1SS133
	INTEGRATED CIRCUITS	
IC711	409 547 2308	IC TDA6118JF/N2
IC721	409 547 2308	IC TDA6118JF/N2
IC731	409 547 2308	IC TDA6118JF/N2
	COILS	
L710	401 025 7102	CARBON 22 JA 1/6W
L711	645 008 0777	INDUCTOR, 12U K
L721	645 008 0777	INDUCTOR, 12U K
L731	645 008 0777	INDUCTOR, 12U K
L741	645 001 4871	INDUCTOR, 10U K
★ L1708	402 001 6300	FUSIBLE RES 10 J- 1/4W
L1730	645 076 0259	LINE FILTER

Schematic Location	Part No.	Description
	TRANSISTORS	
Q711	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q721	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q731	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q741	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q742	405 029 7106	TR 2SC2271-D
	405 013 6207	TR 2SC2271-D-CTV
	405 029 7205	TR 2SC2271-E
	405 013 6306	TR 2SC2271-E-CTV
Q743	405 101 5600	TR 2SA1786E-AN
Q753	406 000 6804	TR 2SA1015-GR(SAN)
	405 001 7407	TR 2SA1015-O(SAN)
	405 001 7605	TR 2SA1015-Y(SAN)
	405 004 3109	TR 2SA564A-Q(CU)
	405 004 3208	TR 2SA564A-R(CU)
	405 151 3304	TR 2SA608NF-NPA

Schematic Location	Part No.	Description
Q753 (Cont.)	405 006 1707	TR 2SA933S-Q
	405 006 1806	TR 2SA933S-R
Q1702	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA
Q1706	405 086 8702	TR 2SC4159
	405 086 8801	TR 2SC4159
Q1707	405 086 8702	TR 2SC4159
	405 086 8801	TR 2SC4159
Q1708	405 100 1603	TR 2SA1606-D-RA
	405 100 1702	TR 2SA1606-E-RA
Q1709	405 108 4903	TR 2SA1837-LB
Q1711	405 108 5009	TR 2SC4793-LB
Q1712	405 011 8401	TR 2SC1740S-Q
	405 011 8500	TR 2SC1740S-R
	405 011 8609	TR 2SC1740S-S
	405 012 2002	TR 2SC1815-GR
	405 012 2101	TR 2SC1815-O
	405 012 2309	TR 2SC1815-Y
	405 157 0505	TR 2SC536NF-NPA
	405 151 8705	TR 2SC536NG-NPA
	405 020 7501	TR 2SC945A-PA
	405 020 7709	TR 2SC945A-QA
	405 020 7907	TR 2SC945A-RA

RESISTORS

R701	401 012 4503	CARBON	100 JA	1/4W
R702	401 012 4503	CARBON	100 JA	1/4W
R703	401 012 4503	CARBON	100 JA	1/4W
R711	401 024 6700	CARBON	100 JA	1/6W
R712	401 020 0801	CARBON	470 JA	1/4W
R713	401 027 2105	CARBON	56 JA	1/6W
R714	401 027 2105	CARBON	56 JA	1/6W
R716	401 012 4503	CARBON	100 JA	1/4W
R717	401 008 6702	CARBON	220 JA	1/2W
R719	401 025 4903	CARBON	180K JA	1/6W
R721	401 024 6700	CARBON	100 JA	1/6W
R722	401 020 0801	CARBON	470 JA	1/4W
R723	401 027 2105	CARBON	56 JA	1/6W
R724	401 027 2105	CARBON	56 JA	1/6W
R725	401 012 4503	CARBON	100 JA	1/4W
R726	401 008 6702	CARBON	220 JA	1/2W
R727	401 012 5708	CARBON	1K JA	1/4W
R729	401 025 4606	CARBON	18K JA	1/6W
R731	401 024 6700	CARBON	100 JA	1/6W
R732	401 020 0801	CARBON	470 JA	1/4W
R733	401 027 2105	CARBON	56 JA	1/6W

Schematic Location	Part No.	Description		
R734	401 027 2105	CARBON	56 JA	1/6W
R735	401 012 4503	CARBON	100 JA	1/4W
R736	401 008 6702	CARBON	220 JA	1/2W
R737	401 012 5708	CARBON	1K JA	1/4W
R739	401 012 5708	CARBON	1K JA	1/4W
★ R741	401 066 3002	OXIDE-MT	2.2 JA	2W
R742	401 024 7707	CARBON	100K JA	1/6W
R743	401 025 1902	CARBON	15K JA	1/6W
R744	401 024 7707	CARBON	100K JA	1/6W
★ R745	401 068 5509	OXIDE-MT	47K JA	2W
★ R746	401 067 4206	OXIDE-MT	33 JA	2W
R747	401 027 2600	CARBON	5.6K JA	1/6W
R756	401 024 7004	CARBON	1K JA	1/6W
R757	401 026 6609	CARBON	390 JA	1/6W
R758	401 024 7400	CARBON	10K JA	1/6W
R759	401 024 6403	CARBON	10 JA	1/6W
R1701	401 024 6700	CARBON	100 JA	1/6W
R1707	401 027 5205	CARBON	680 JA	1/6W
R1708	401 015 7808	CARBON	2.7 JA	1/4W
R1709	401 015 7808	CARBON	2.7 JA	1/4W
R1711	401 027 2105	CARBON	56 JA	1/6W
R1716	401 026 3905	CARBON	330 JA	1/6W
R1720	401 024 9701	CARBON	12K JA	1/6W
R1722	401 026 4605	CARBON	33K JA	1/6W
R1723	401 027 2600	CARBON	5.6K JA	1/6W
R1724	401 027 5908	CARBON	68K JA	1/6W
R1727	401 006 9408	CARBON	10 JB	1/2W
R1728	401 025 3807	CARBON	180 JA	1/6W
★ R1730	401 067 5302	OXIDE-MT	330 JA	2W
R1732	401 024 9305	CARBON	1.2K JA	1/6W
R1733	401 024 7707	CARBON	100K JA	1/6W
R1734	401 024 7707	CARBON	100K JA	1/6W
R1735	401 024 9305	CARBON	1.2K JA	1/6W
R1736	401 024 9701	CARBON	12K JA	1/6W
★ R1737	401 065 1801	OXIDE-MT	12 JA	2W
★ R1738	401 065 1801	OXIDE-MT	12 JA	2W
★ R1742	401 066 6102	OXIDE-MT	220 JA	2W
★ R1743	402 063 6706	FUSIBLE RES	270 J-	2W
R1744	401 024 9305	CARBON	1.2K JA	1/6W

MISCELLANEOUS

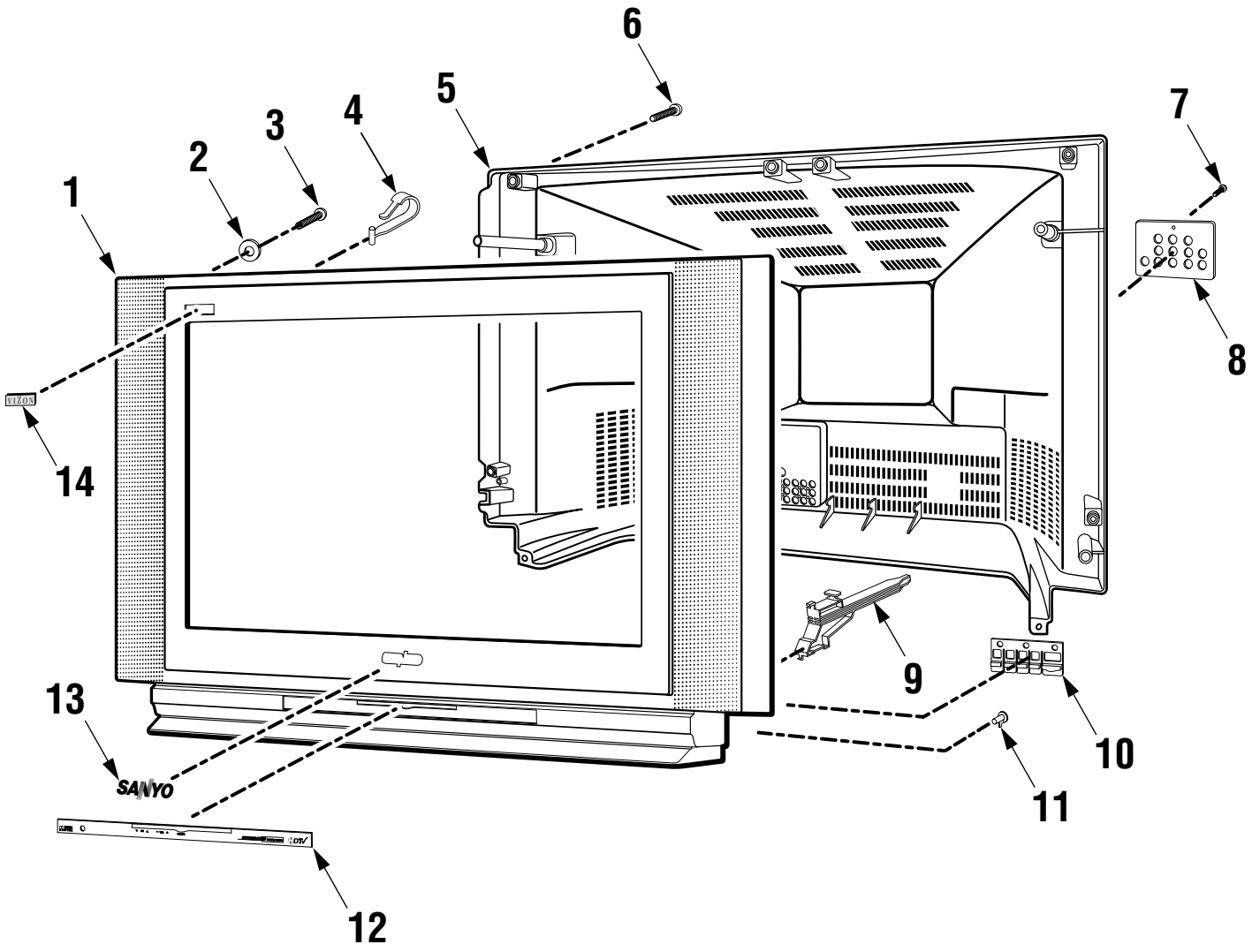
A700	610 319 4349	ASSY, PWB, CRT
★ K702	645 028 0306	SOCKET, CRT 8P
★ Q900	414 013 2607	CRT W70ELC011X221
★ W900	610 319 5131	ASSY,WIRE GND CONNECTOR
XL710	610 216 4268	FILTER, EMI 120PF
XL720	610 216 4268	FILTER, EMI 120PF
XL730	610 216 4268	FILTER, EMI 120PF

DIGITAL PC BOARD

A5500	610 319 4332	ASSY, PWB, DIGITAL H3JAM

Nonservicable part. No discreet parts provided for this pc board.

CABINET PARTS LIST



CABINET PARTS LIST

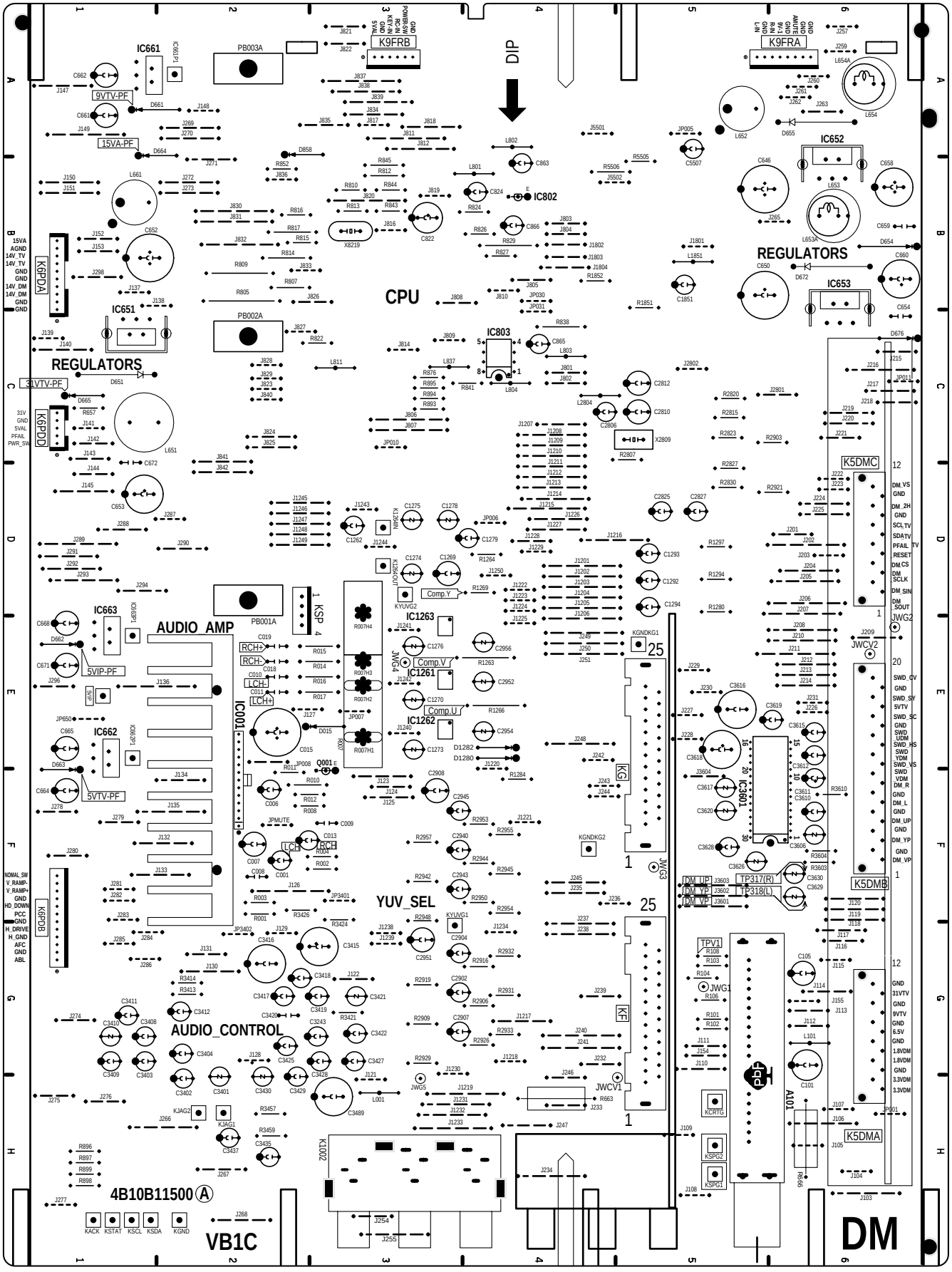
KEY NO.	PARTS NO.	DESCRIPTION
1	610 319 4226	CABINET FRONT-H3JAM
2	610 268 9662	CRT MTG WASH (2.5MM 2 TOP)
	412 051 7806	CRT MTG WASH (2.0MM 2 BTM)
3	412 053 3905	CRT MTG SCREW (4 USED)
4	610 102 7151	DC HOLDER (4 USED)
5	610 319 4257	CABINET BACK-H3JAM
6	412 064 4304	SCREW 4X14 (10 USED)
7	411 026 2303	SCREW 3X10 (4 USED)
8	610 313 2457	DEC AV SHEET-H3DAM
9	610 311 6402	CHASSIS RAIL- (3)
10	610 319 4172	ASSY, BUTTON UNIT-H3JAM
11	610 289 5148	CAP RC-G8EAM
12	610 319 4264	DEC PLATE
13	645 067 1333	SANYO BADGE
14	610 313 4093	DEC SHEET VIZON

ACCESSORY PARTS LIST

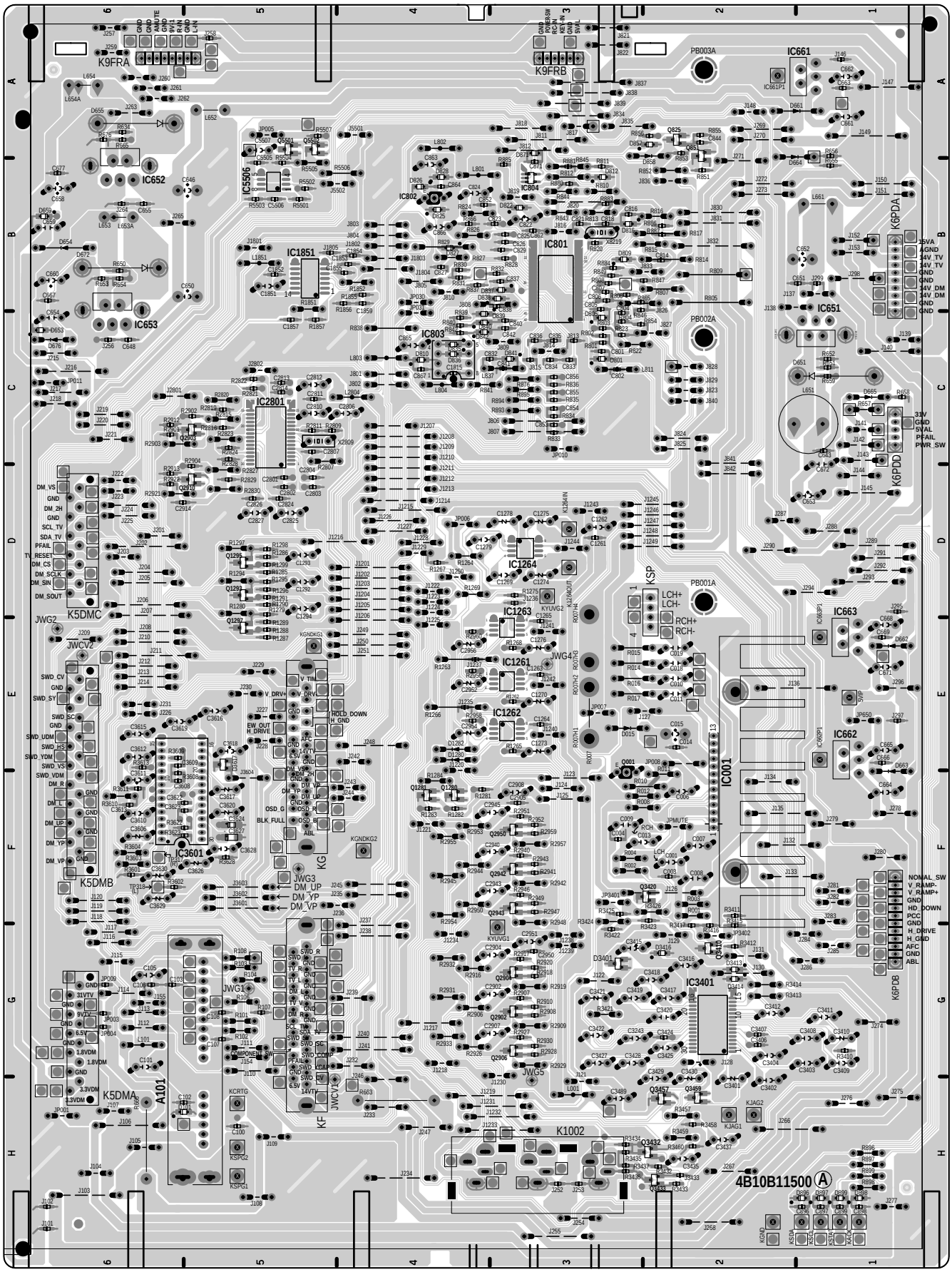
KEY NO.	PARTS NO.	DESCRIPTION
	610 319 9245	OWNER'S MANUAL
	645 075 0977	ASSY, REMOCON
	610 322 2844	RC-BATTERY LID

COMPONENT AND TESTPOINT LOCATIONS

MAIN BOARD PARTS SIDE

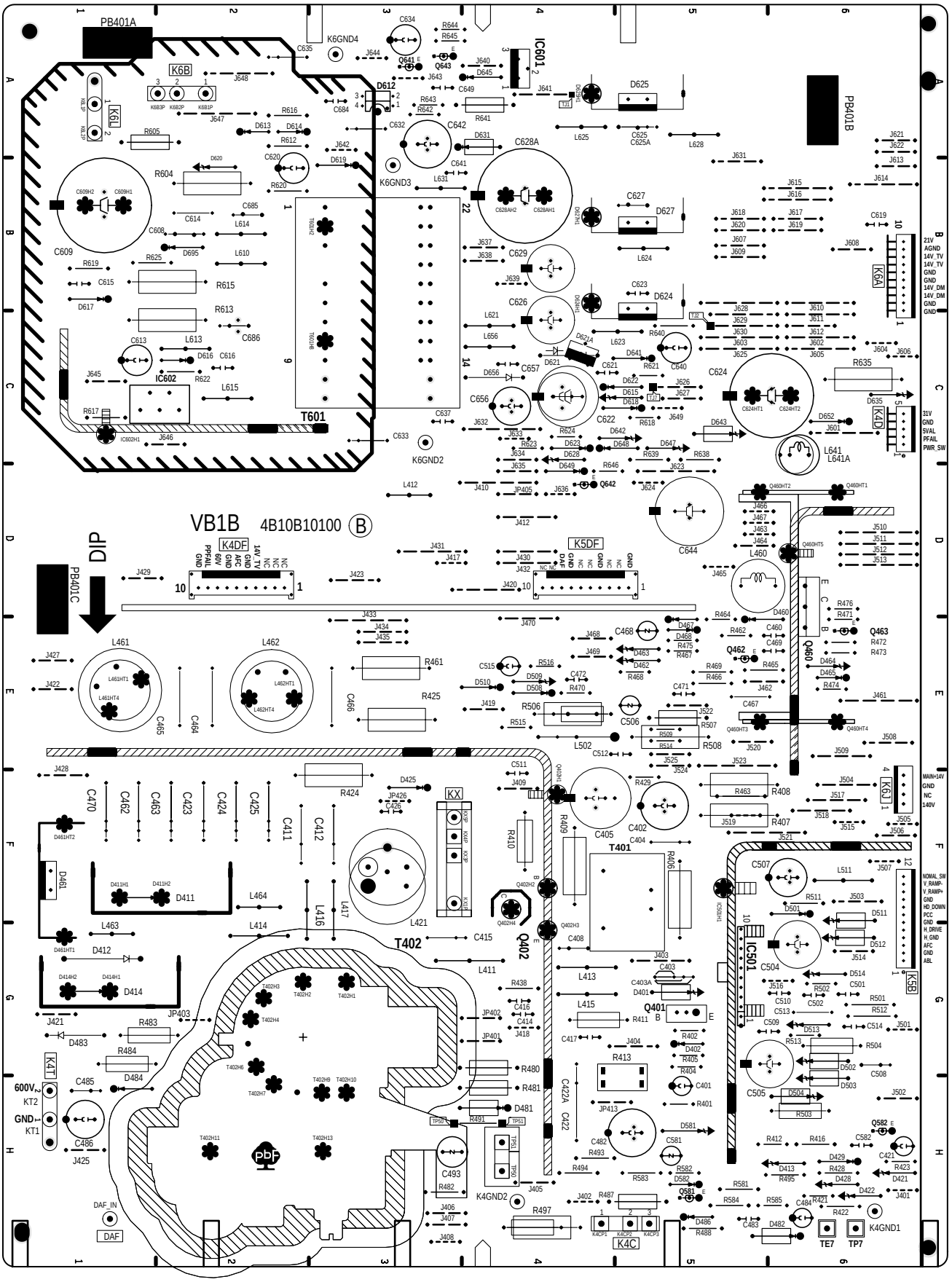


MAIN BOARD FOIL SIDE

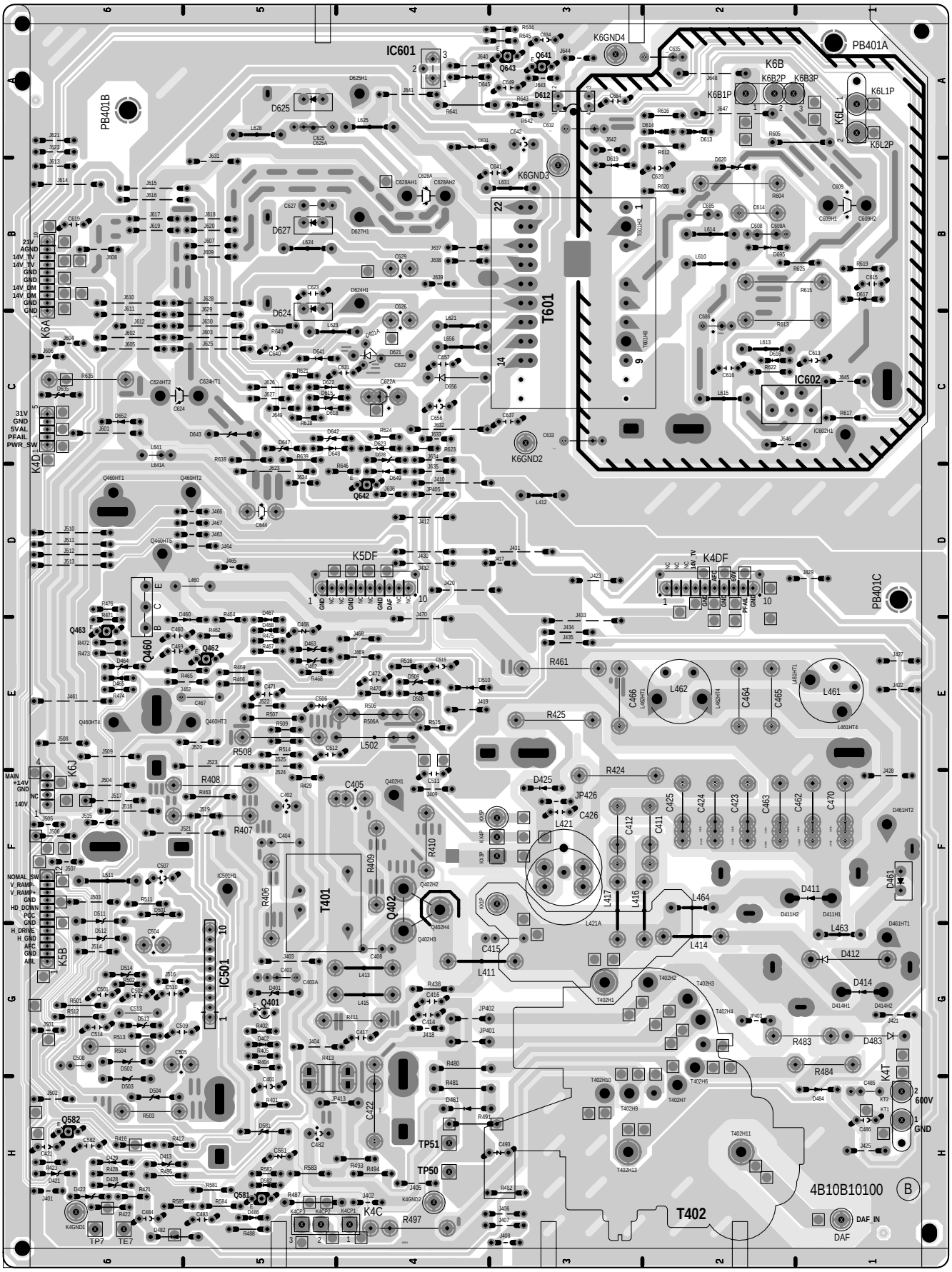


COMPONENT AND TESTPOINT LOCATIONS (Cont.)

POWER / DEFLECTION BOARD PARTS SIDE

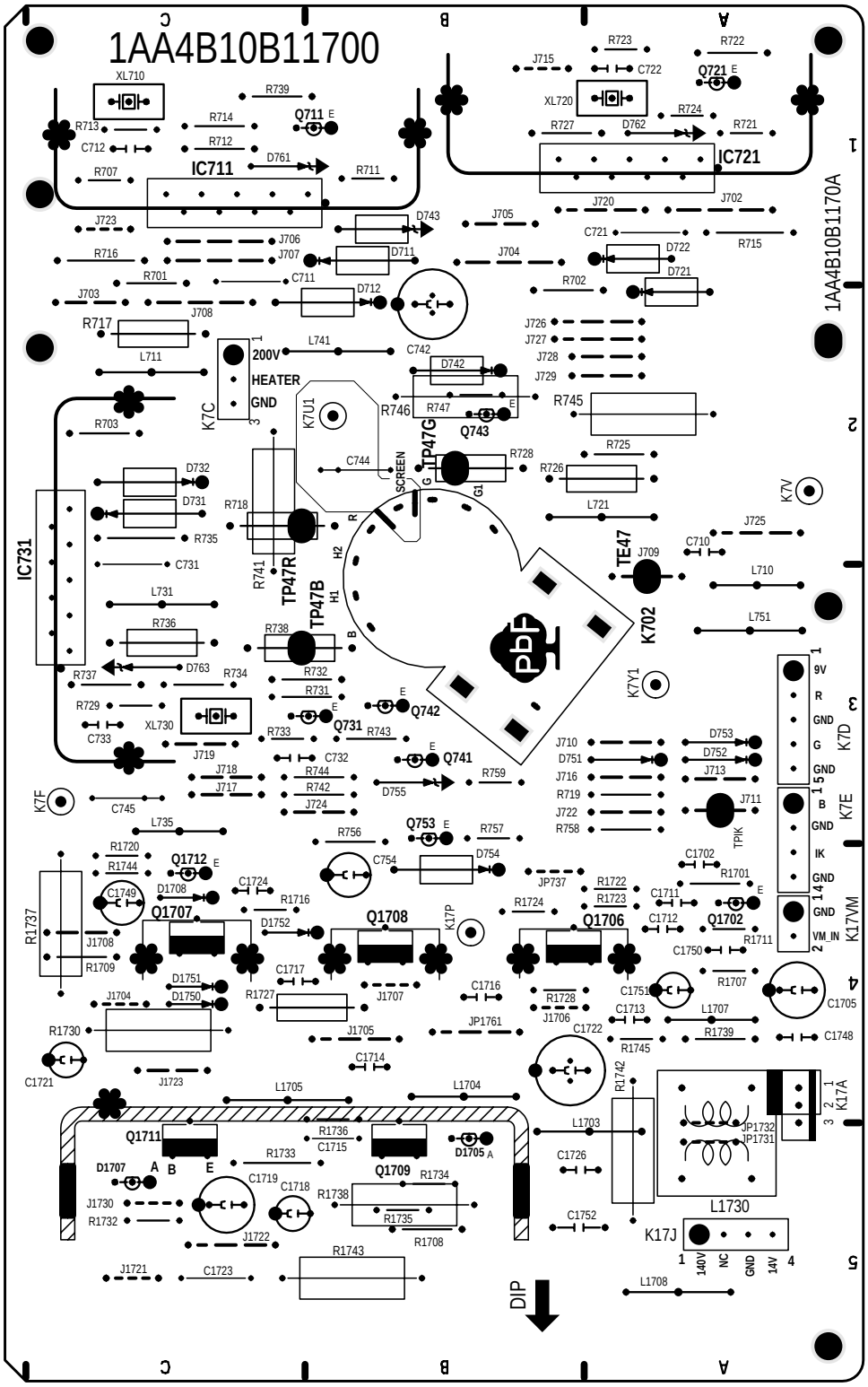


POWER / DEFLECTION BOARD FOIL SIDE

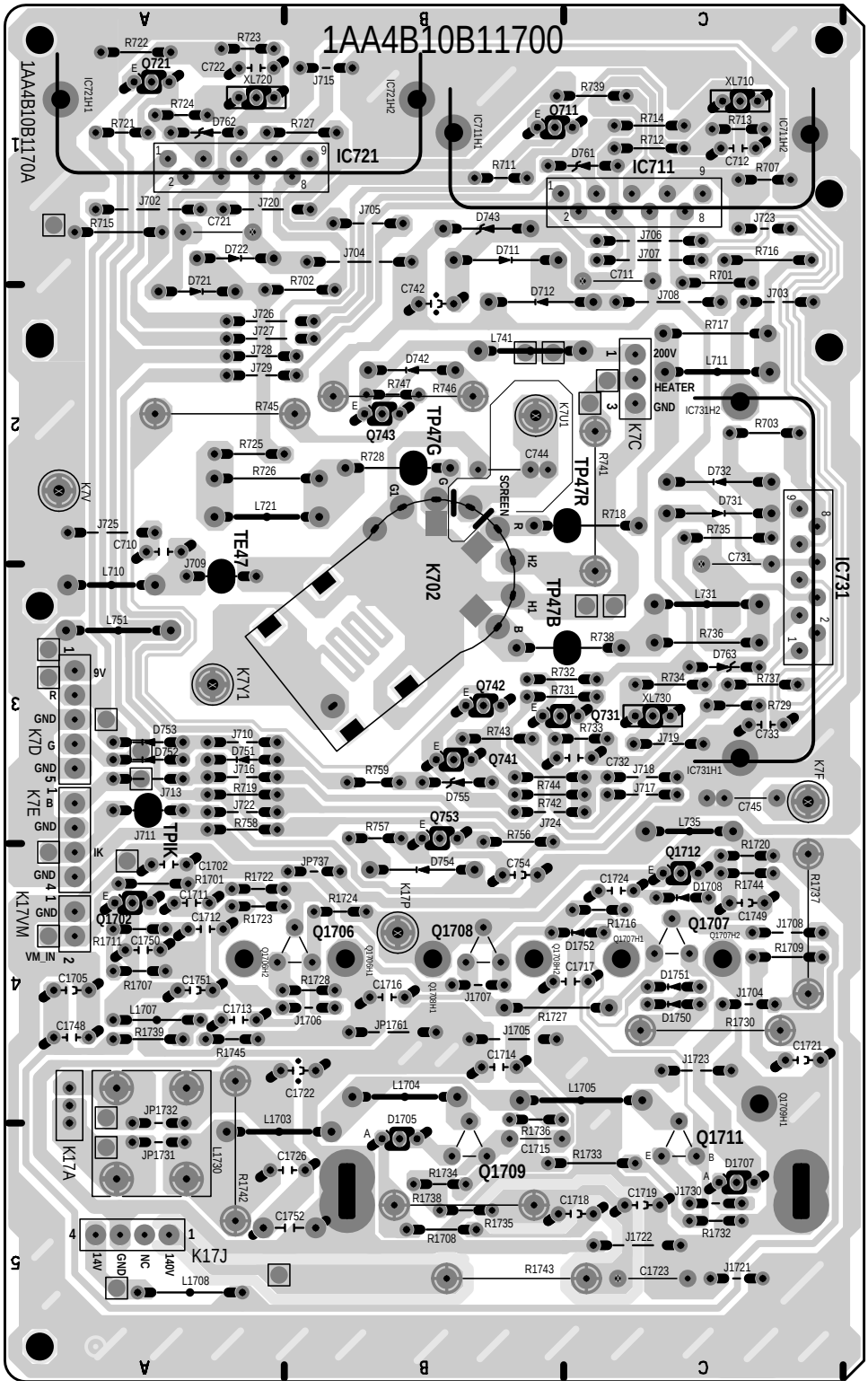


COMPONENT AND TESTPOINT LOCATIONS (Cont.)

CRT SOCKET / VELOCITY MODULATION BOARD PARTS SIDE

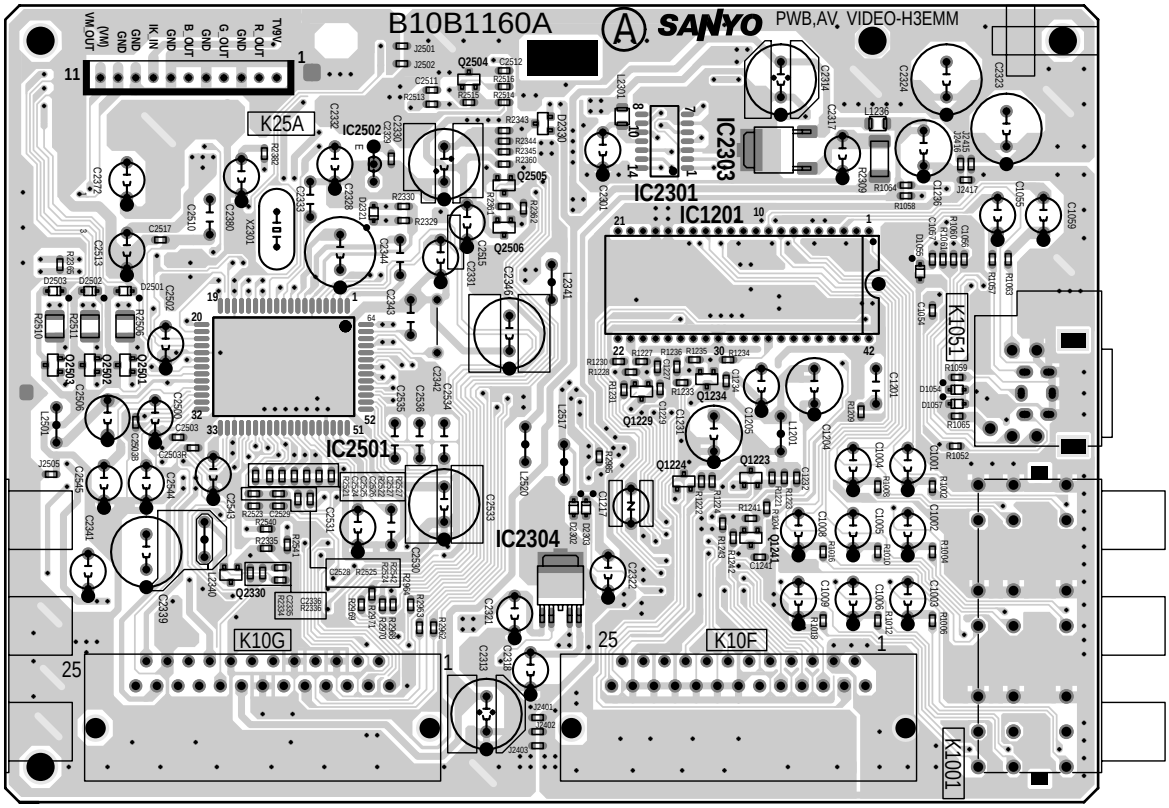


CRT SOCKET / VELOCITY MODULATION BOARD FOIL SIDE

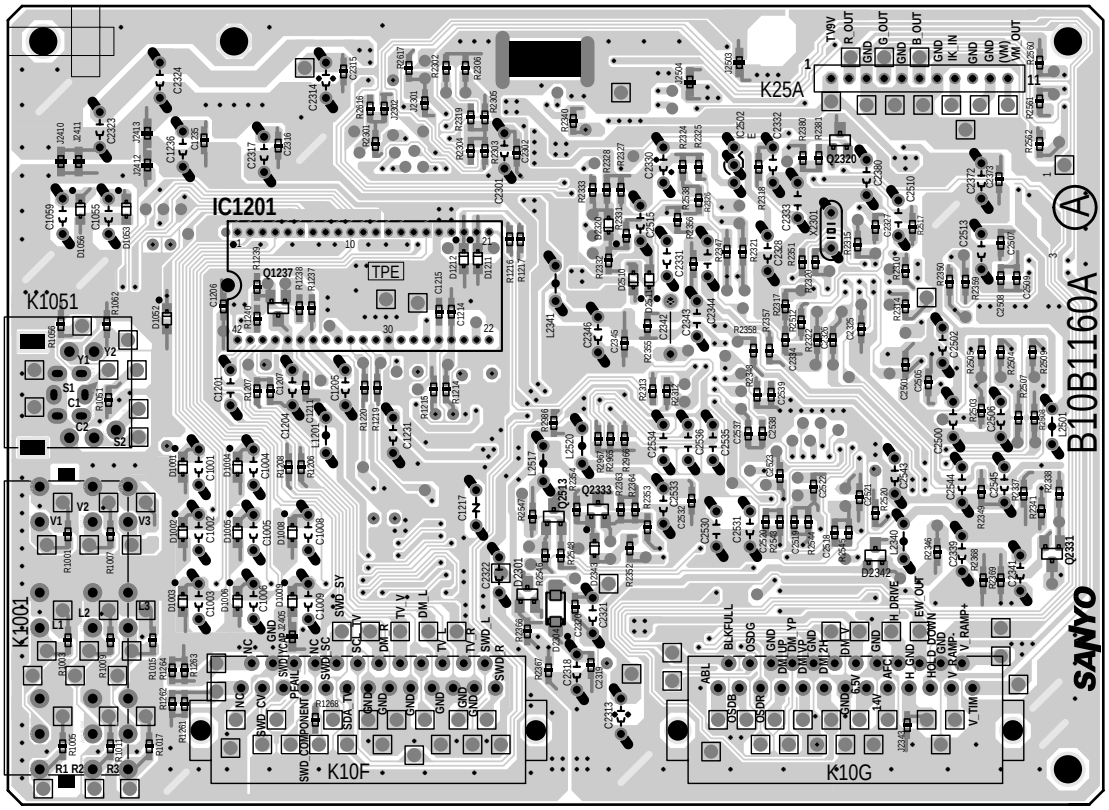


COMPONENT AND TESTPOINT LOCATIONS (Cont.)

AV / VIDEO BOARD PARTS SIDE

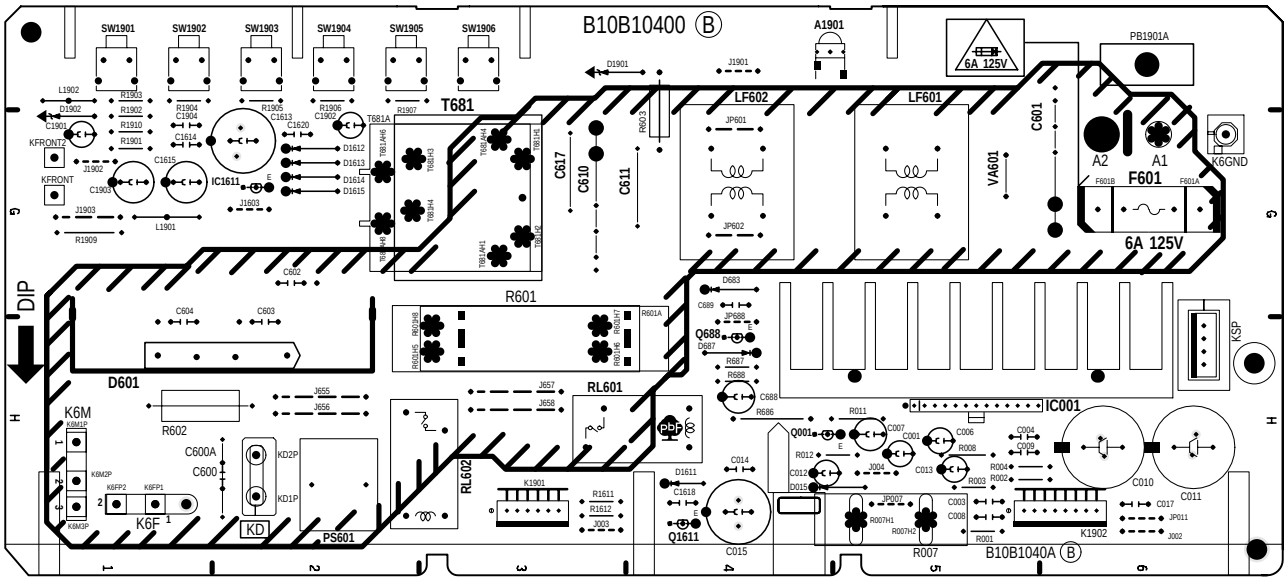


AV / VIDEO BOARD FOIL SIDE

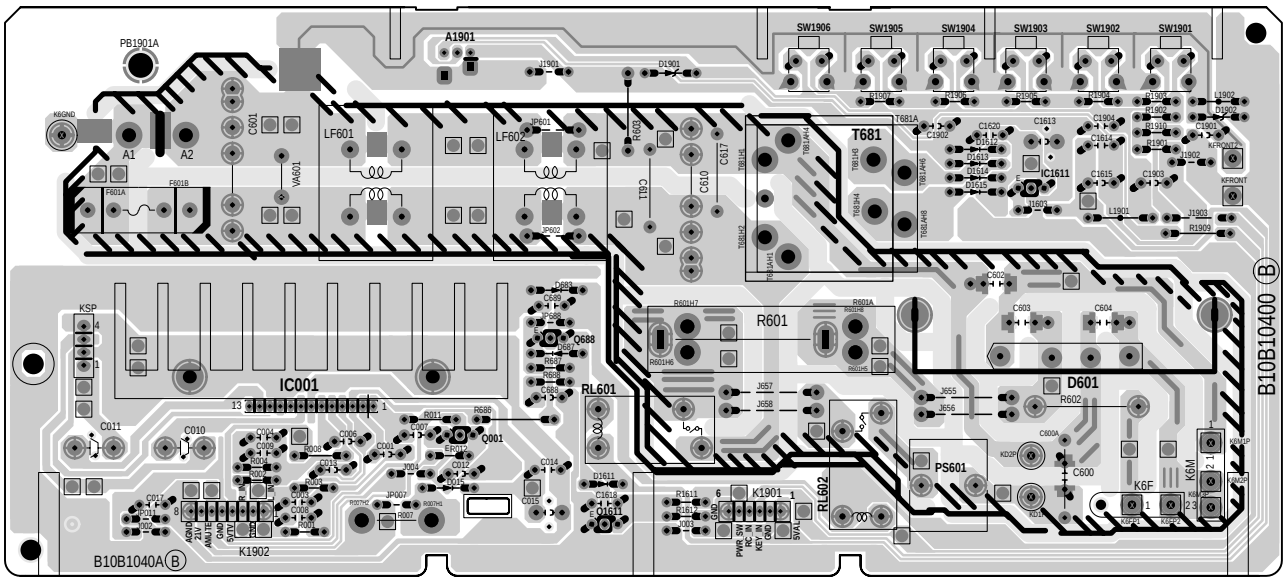


COMPONENT AND TESTPOINT LOCATIONS (Cont.)

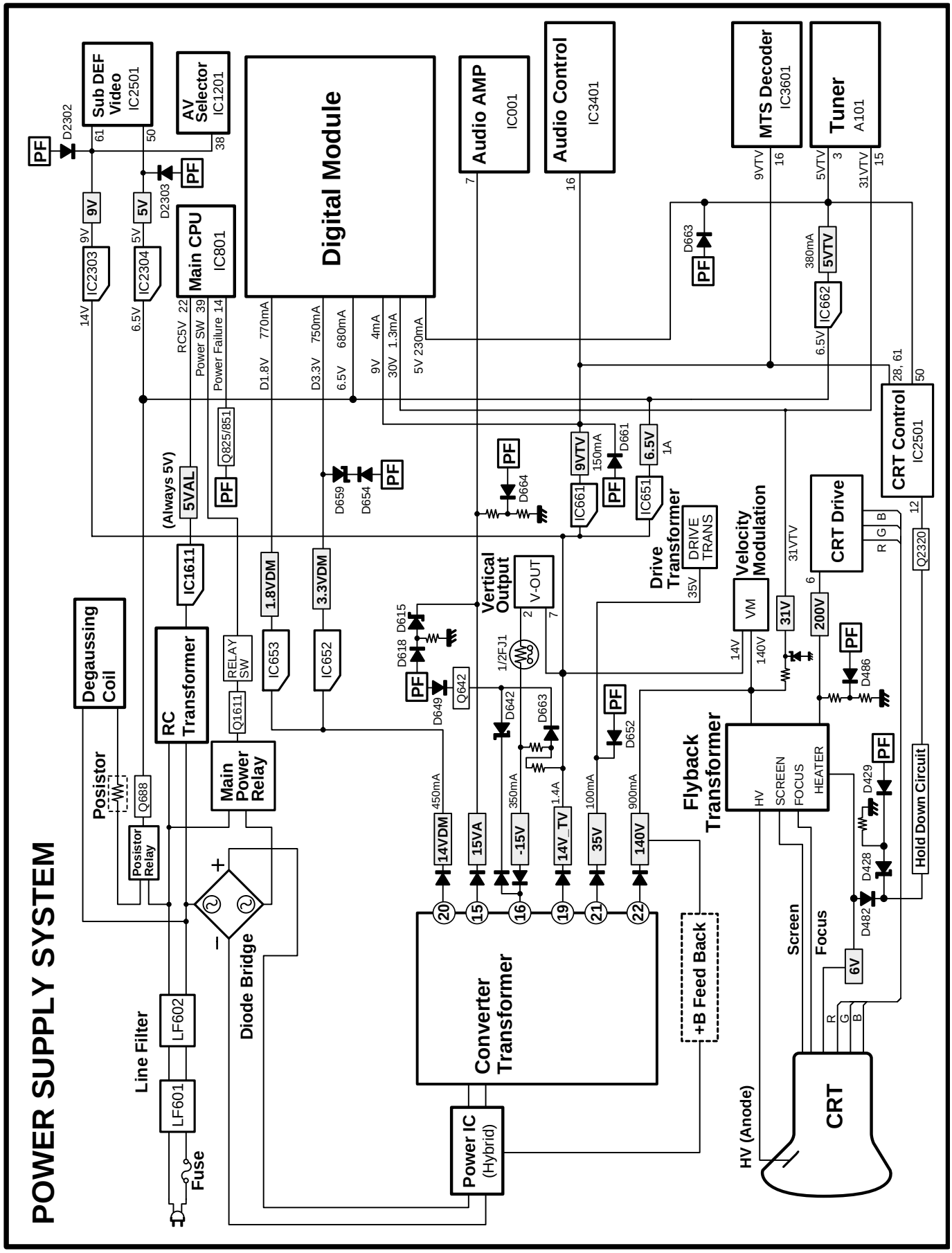
FRONT BOARD PARTS SIDE



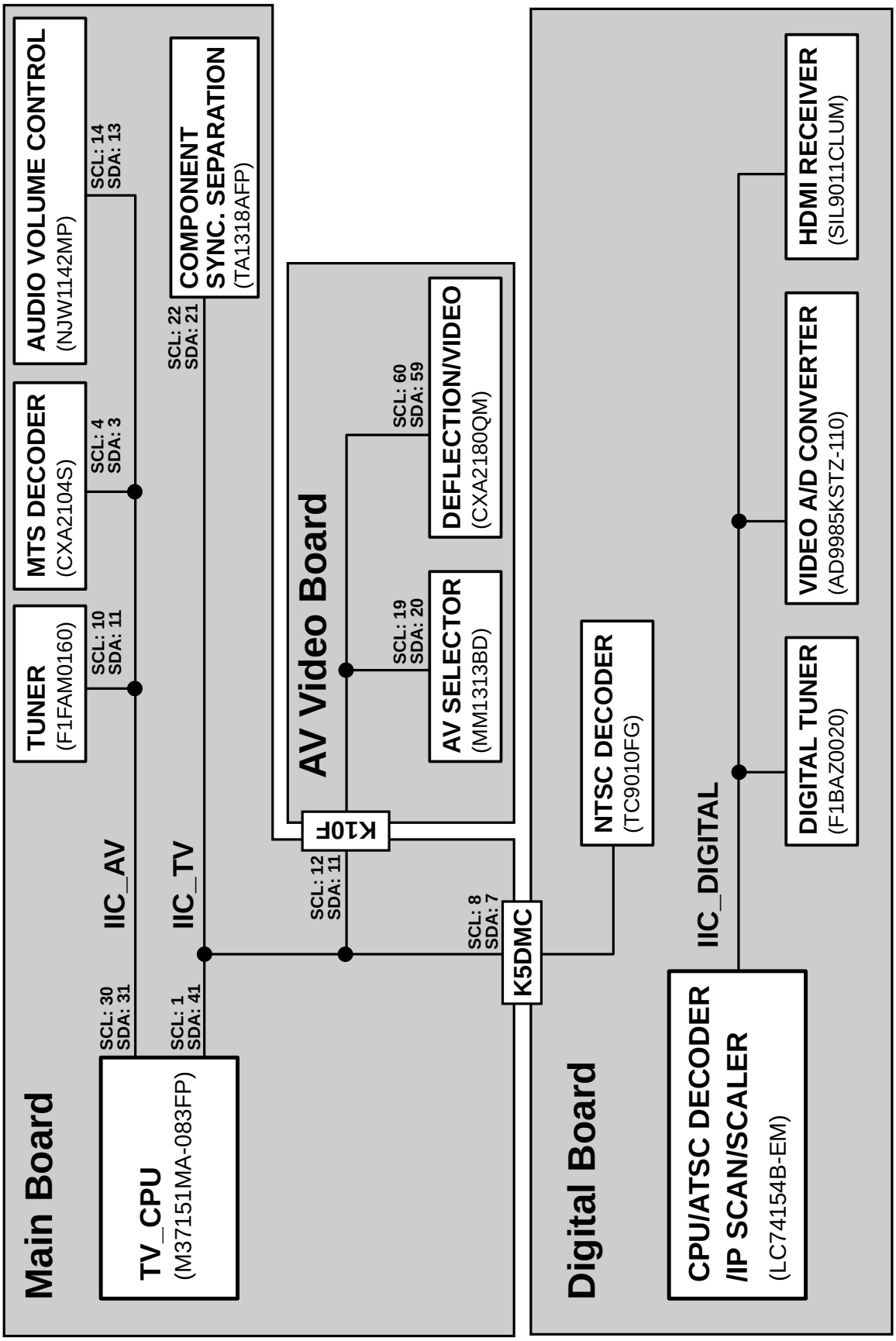
FRONT BOARD FOIL SIDE



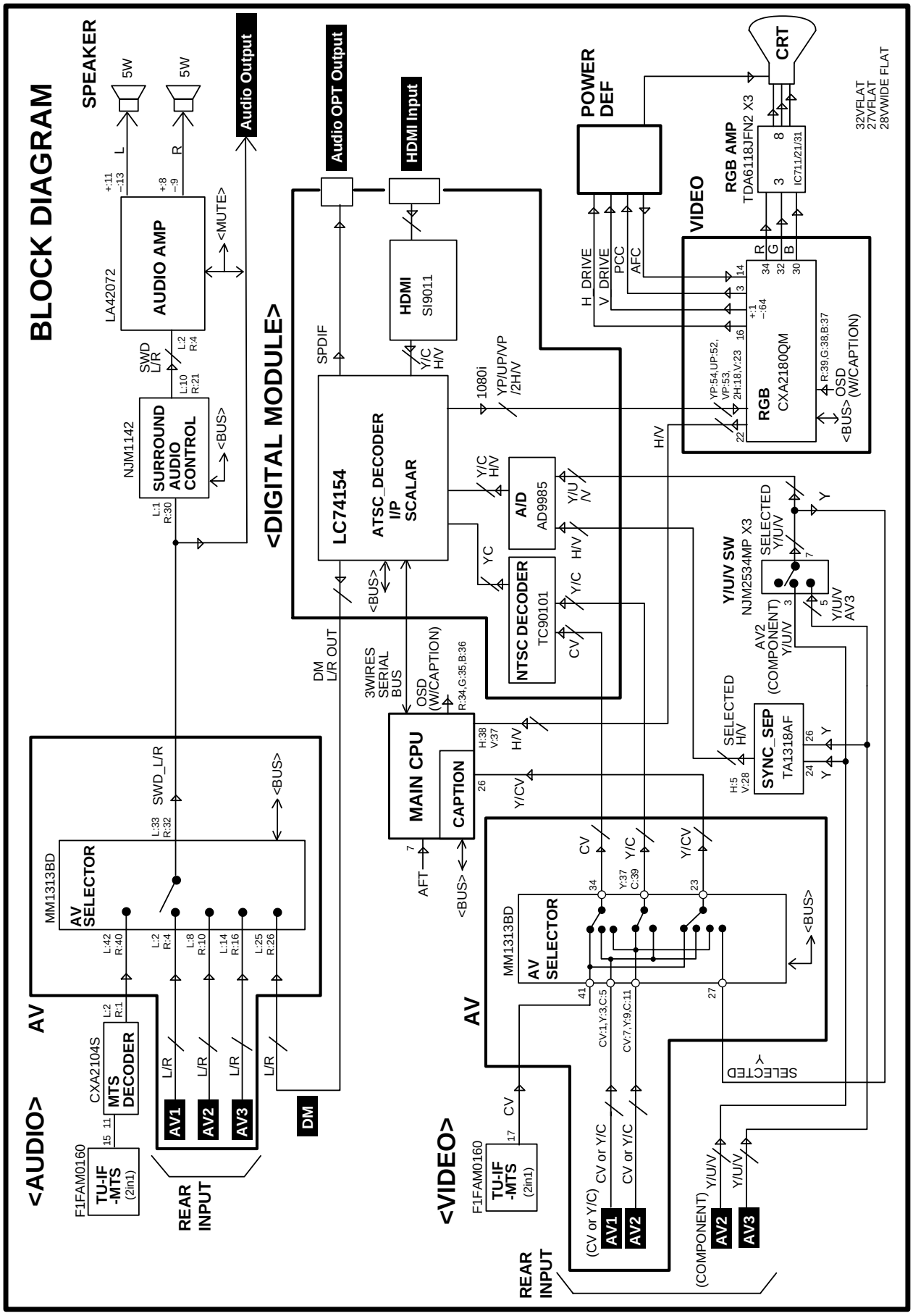
POWER LINES


POWER SUPPLY SYSTEM
Fuse
LF601
LF602
Line Filter
Diode Bridge
Degaussing Coil
Posistor
Posistor Relay
Q688
RC Transformer
IC1611
Main Power Relay
Q1611
RELAY SW
(Always 5V)
5VAL
Q825/851
IC653
IC652
1.8VDM
3.3VDM
Power IC (Hybrid)
Converter Transformer
14VDM
15VA
-15V
14V_TV
35V
140V
450mA
350mA
1.4A
100mA
900mA
+B Feed Back
Flyback Transformer
HV
SCREEN
FOCUS
HEATER
HV (Anode)
CRT
Screen
Focus
6V
Vertical Output
V-OUT
1/2FJ1
Q642
D615
D618
D649
D642
D663
D652
Drive Transformer
DRIVE TRANS
35V
Velocity Modulation
VM
14V
140V
31V
200V
CRT Drive
R G B
Q2320
CRT Control
IC2501
Hold Down Circuit
28, 61
50
12
Digital Module
Main CPU
IC801
RC5V 22
Power SW 39
Power Failure 14
D1.8V 770mA
D3.3V 750mA
6.5V 680mA
9V 4mA
30V 1.3mA
5V 230mA
Audio AMP
IC001
7
Audio Control
IC3401
16
MTS Decoder
IC3601
9VTV
16
Tuner
A101
5VTV
3
31VTV
15
380mA
5VTV
IC662
6.5V
D663
9VTV
150mA
D661
IC661
6.5V
1A
IC651
D664
D659
D654
PF
D2302
D2303
Sub DEF Video
IC2501
AV Selector
IC1201
61
50
38
9V
5V
IC2303
IC2304
14V
6.5V
D429
D428
D482
D486
6
2
7
20
15
16
19
21
22

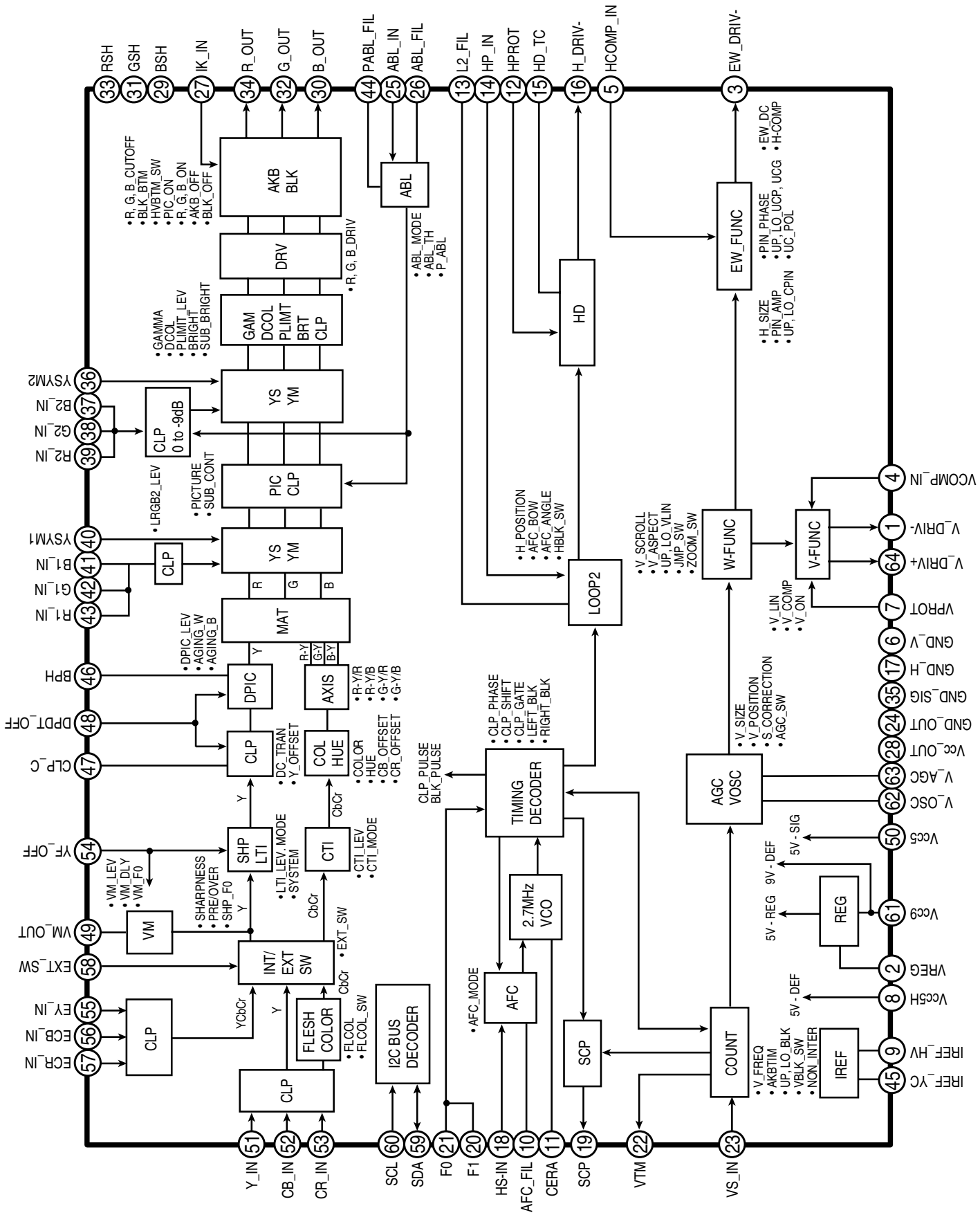
MAIN CPU DATA BUS LINES



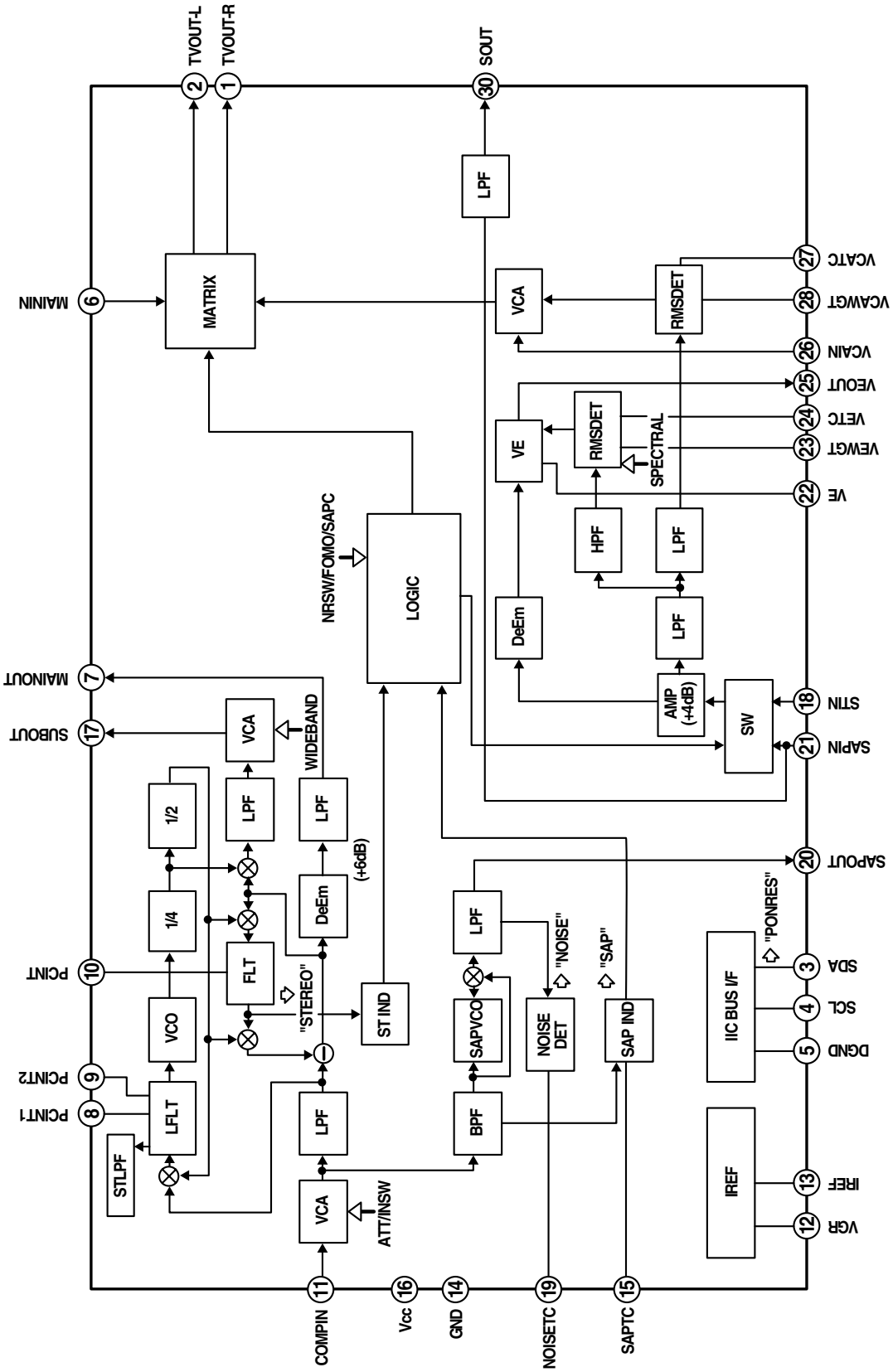
SIGNAL LINES



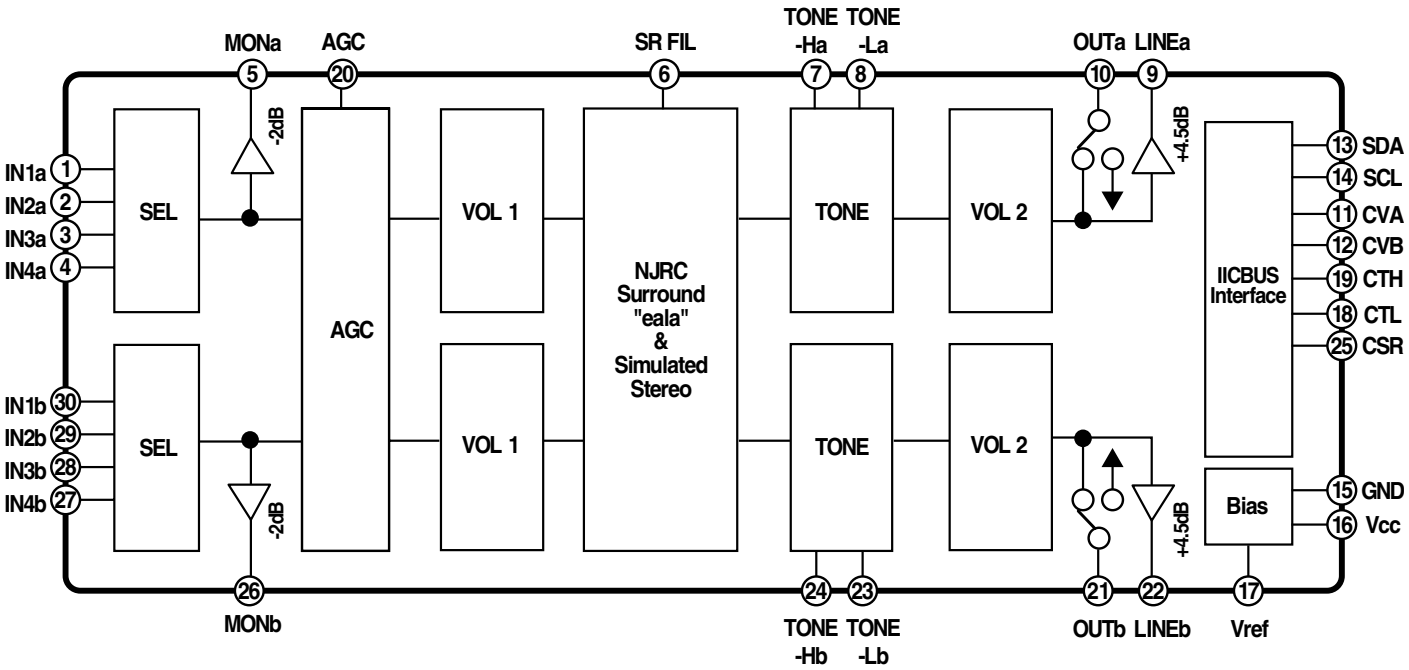
IC2501 CRT DRIVER BLOCK DIAGRAM



IC3601 AUDIO PROCESSOR BLOCK DIAGRAM

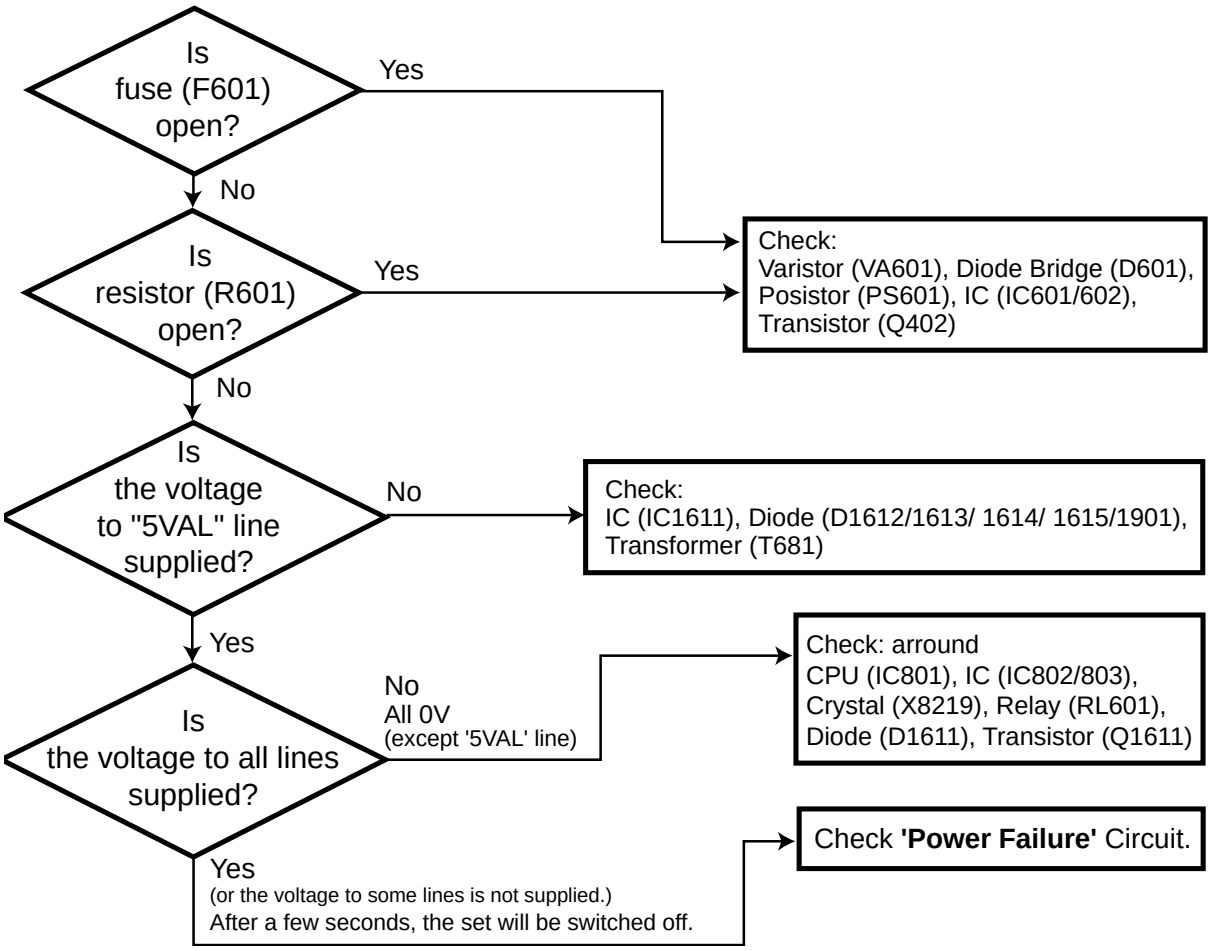


IC3401 AUDIO CONTROL BLOCK DIAGRAM

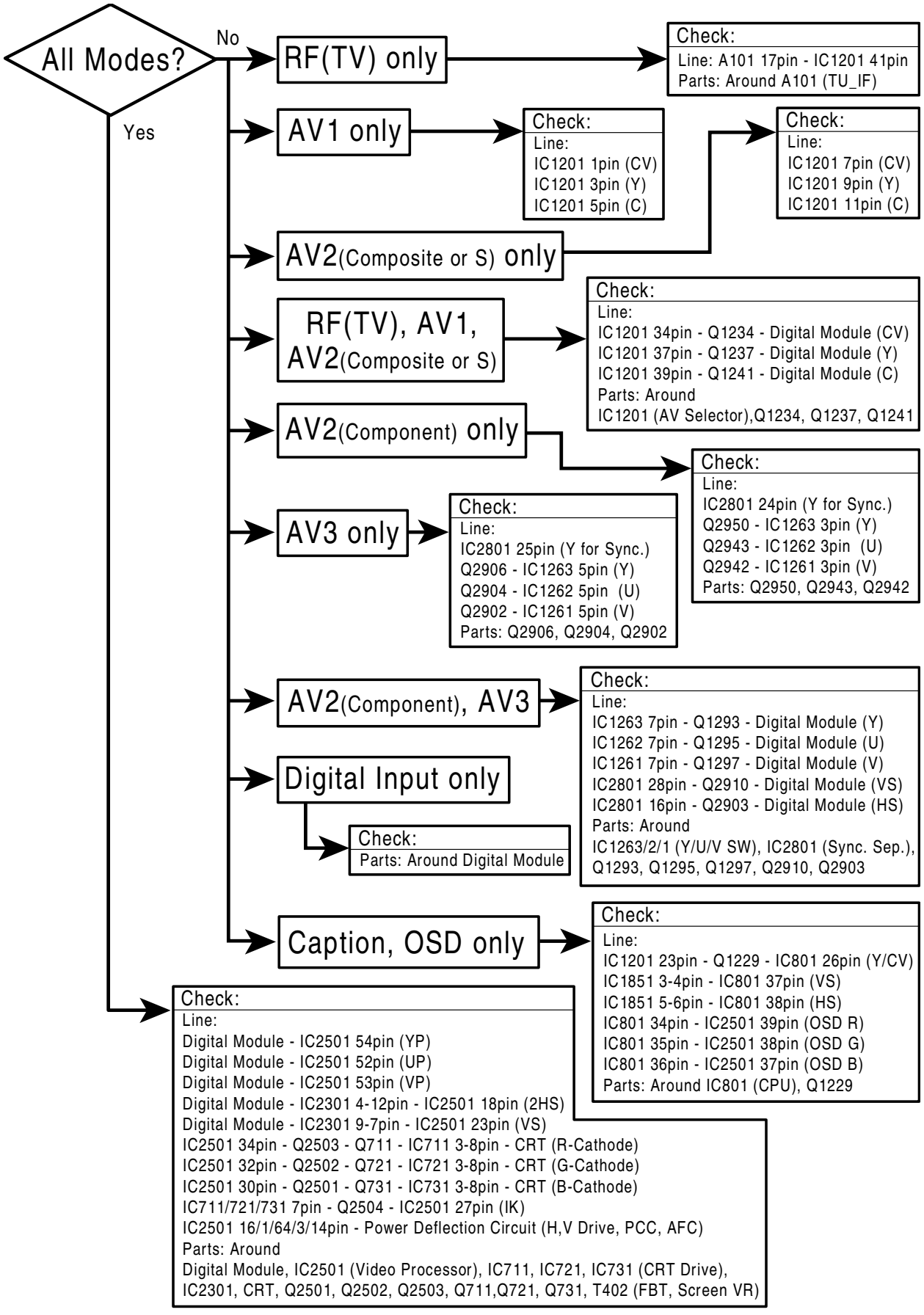


TROUBLESHOOTING FLOW CHARTS

NO POWER

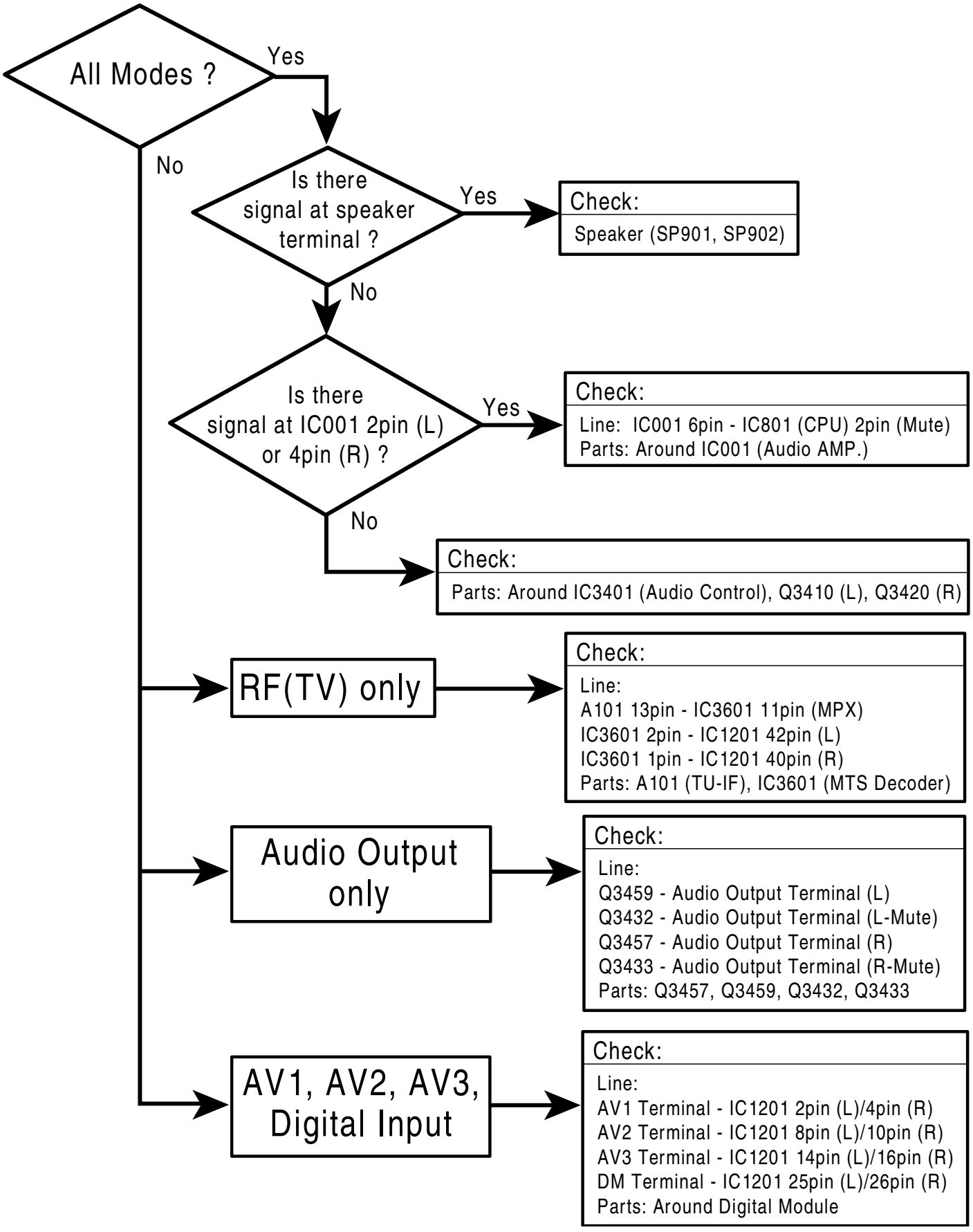

Is fuse (F601) open?
Yes
No
Check: Varistor (VA601), Diode Bridge (D601), Posistor (PS601), IC (IC601/602), Transistor (Q402)
Is resistor (R601) open?
Yes
No
Is the voltage to "5VAL" line supplied?
No
Check: IC (IC1611), Diode (D1612/1613/ 1614/ 1615/1901), Transformer (T681)
Yes
Is the voltage to all lines supplied?
No
All 0V
(except '5VAL' line)
Check: arround CPU (IC801), IC (IC802/803), Crystal (X8219), Relay (RL601), Diode (D1611), Transistor (Q1611)
Yes
(or the voltage to some lines is not supplied.)
After a few seconds, the set will be switched off.
Check **'Power Failure'** Circuit.

NO PICTURE


All Modes?
No
Yes
RF(TV) only
Check:
Line: A101 17pin - IC1201 41pin
Parts: Around A101 (TU_IF)
AV1 only
Check:
Line:
IC1201 1pin (CV)
IC1201 3pin (Y)
IC1201 5pin (C)
Check:
Line:
IC1201 7pin (CV)
IC1201 9pin (Y)
IC1201 11pin (C)
AV2(Composite or S) only
RF(TV), AV1, AV2(Composite or S)
Check:
Line:
IC1201 34pin - Q1234 - Digital Module (CV)
IC1201 37pin - Q1237 - Digital Module (Y)
IC1201 39pin - Q1241 - Digital Module (C)
Parts: Around
IC1201 (AV Selector),Q1234, Q1237, Q1241
AV2(Component) only
Check:
Line:
IC2801 24pin (Y for Sync.)
Q2950 - IC1263 3pin (Y)
Q2943 - IC1262 3pin (U)
Q2942 - IC1261 3pin (V)
Parts: Q2950, Q2943, Q2942
AV3 only
Check:
Line:
IC2801 25pin (Y for Sync.)
Q2906 - IC1263 5pin (Y)
Q2904 - IC1262 5pin (U)
Q2902 - IC1261 5pin (V)
Parts: Q2906, Q2904, Q2902
AV2(Component), AV3
Check:
Line:
IC1263 7pin - Q1293 - Digital Module (Y)
IC1262 7pin - Q1295 - Digital Module (U)
IC1261 7pin - Q1297 - Digital Module (V)
IC2801 28pin - Q2910 - Digital Module (VS)
IC2801 16pin - Q2903 - Digital Module (HS)
Parts: Around
IC1263/2/1 (Y/U/V SW), IC2801 (Sync. Sep.),
Q1293, Q1295, Q1297, Q2910, Q2903
Digital Input only
Check:
Parts: Around Digital Module
Caption, OSD only
Check:
Line:
IC1201 23pin - Q1229 - IC801 26pin (Y/CV)
IC1851 3-4pin - IC801 37pin (VS)
IC1851 5-6pin - IC801 38pin (HS)
IC801 34pin - IC2501 39pin (OSD R)
IC801 35pin - IC2501 38pin (OSD G)
IC801 36pin - IC2501 37pin (OSD B)
Parts: Around IC801 (CPU), Q1229
Check:
Line:
Digital Module - IC2501 54pin (YP)
Digital Module - IC2501 52pin (UP)
Digital Module - IC2501 53pin (VP)
Digital Module - IC2301 4-12pin - IC2501 18pin (2HS)
Digital Module - IC2301 9-7pin - IC2501 23pin (VS)
IC2501 34pin - Q2503 - Q711 - IC711 3-8pin - CRT (R-Cathode)
IC2501 32pin - Q2502 - Q721 - IC721 3-8pin - CRT (G-Cathode)
IC2501 30pin - Q2501 - Q731 - IC731 3-8pin - CRT (B-Cathode)
IC711/721/731 7pin - Q2504 - IC2501 27pin (IK)
IC2501 16/1/64/3/14pin - Power Deflection Circuit (H,V Drive, PCC, AFC)
Parts: Around
Digital Module, IC2501 (Video Processor), IC711, IC721, IC731 (CRT Drive),
IC2301, CRT, Q2501, Q2502, Q2503, Q711,Q721, Q731, T402 (FBT, Screen VR)

TROUBLE SHOOTING FLOW CHARTS (Cont.)

NO SOUND


All Modes ?
Yes
No
Is there signal at speaker terminal ?
Yes
Check:
Speaker (SP901, SP902)
No
Is there signal at IC001 2pin (L) or 4pin (R) ?
Yes
Check:
Line: IC001 6pin - IC801 (CPU) 2pin (Mute)
Parts: Around IC001 (Audio AMP.)
No
Check:
Parts: Around IC3401 (Audio Control), Q3410 (L), Q3420 (R)
RF(TV) only
Check:
Line:
A101 13pin - IC3601 11pin (MPX)
IC3601 2pin - IC1201 42pin (L)
IC3601 1pin - IC1201 40pin (R)
Parts: A101 (TU-IF), IC3601 (MTS Decoder)
Audio Output only
Check:
Line:
Q3459 - Audio Output Terminal (L)
Q3432 - Audio Output Terminal (L-Mute)
Q3457 - Audio Output Terminal (R)
Q3433 - Audio Output Terminal (R-Mute)
Parts: Q3457, Q3459, Q3432, Q3433
AV1, AV2, AV3, Digital Input
Check:
Line:
AV1 Terminal - IC1201 2pin (L)/4pin (R)
AV2 Terminal - IC1201 8pin (L)/10pin (R)
AV3 Terminal - IC1201 14pin (L)/16pin (R)
DM Terminal - IC1201 25pin (L)/26pin (R)
Parts: Around Digital Module

CONTROL PORT FUNCTION

System Control (CPU : IC801)

Pin	Name	Function	I/O	Description
1	P11/SCL1	IIC bus clock for TV	IN	
2	P00/PWM0	Audio AMP mute out	OUT	Active : High
3	P01/PWM1	DM Reset out	OUT	Reset Output : Low
4	P02/PWM2	BPF-SW	OUT	Active : High
5	P03/PWM3/AD1	Key in	IN	
6	P04/PWM4/AD2	AVSW2	IN	Active : High
7	P05/AD3	AFT S-Figure in	IN	
8	P06/INT2/AD4	ABL in	IN	Active : Low (Only SDTV model)
9	P07/INT1	RC in	IN	
10	P20/SCLK/AD5	SCLK for DM	OUT	
11	P21/SOUT/AD6	SOUT for DM	OUT	
12	P22/SIN/AD7	SIN for DM	IN	
13	P23/TIM3	CS for DM	OUT	
14	P24/TIM2	Power Failure in	OUT	Active : Low
15	P25/INT3	Normal SW	OUT	Active : High (Only SDTV model)
16	P36/XCIN	Status in	IN	IIC bus control for factory, Bus release request : Low
17	P27/XCOUT	Ack out	OUT	IIC bus control for factory, Bus release : Low
18	CNVss	CNVss	–	
19	Xin	Xin	IN	Main Clock Input, Fosc=8MHz
20	Xout	Xout	OUT	Main Clock Output, Fosc=8MHz
21	Vss	Vss		0Vdc
22	Vcc	Power in		5Vdc±10%
23	FLT	Filter for IC	IN	
24	HLF	HLF out	OUT	for Caption RC-Filter
25	Vhold	Vhold	OUT	for Caption
26	Cvin	Cvin	IN	for Caption
27	RESET	RESET in	IN	Need more than 2µ sec
28	Pullup	Pullup	IN	10KΩ
29	P15	AVSW1	OUT	Active : High
30	P31/SCL3	IIC bus clock for AV	IN	Only HDTV model
31	P30/SDA3	IIC bus data for AV	OUT	Only HDTV model
32	CLK/cont/P10	Fix/Variable out	OUT	Fix : Low, Variable : High
33	P55/OUT	OSD BLK out	OUT	Polarity : Positive
34	P54/R	OSD R out	OUT	Polarity : Positive
35	P53/G	OSD G out	OUT	Polarity : Positive
36	P52/B	OSD B out	OUT	Polarity : Positive
37	P51/Vsync	Vsync	IN	Polarity : Negative
38	P50/Hsync	Hsync	IN	Polarity : Negative
39	P16/AD8/TIM2	TV relay out	OUT	Active : High
40	P14/SD2	IIC bus data for NVL	OUT	
41	P13/SDA1	IIC bus data for TV	OUT	
42	P12/SCL2	IIC bus clock for NVL	IN	

Mode Switching Table

Mode	AVSW1 (pin29)	AVSW2 (pin6)
AV2 (Component)	**High**	**Low**
AV3	**Low**	**High**
Others	**Low**	**Low**

For parts or service contact

SANYO Fisher Service Corporation
21605 Plummer Street
Chatsworth, CA 91311 (U.S.A.)

300 Applewood Crescent,
Concord, Ontario L4K 5C7 (CANADA)

April / 2005 / 2000 SMC

Printed in U.S.A.

MODEL HT28745 **Chassis No. 28745-00**

SCHEMATIC DIAGRAMS

NOTES ON SCHEMATIC DIAGRAMS

1. All resistance values in ohms K=1,000 M=1,000,000.
2. Unless otherwise noted on schematic, all capacitor values less than 1 are expressed in µF (Micro Farad), and the values more than 1 are in pF.
3. Unless otherwise noted on schematic, voltage reading taken with VOM from point indicated to chassis ground. Voltage reading taken using color-bar signal VHF channel 5, all controls at normal. Line voltage at 120 volts. Some voltages may vary with signal strength.
4. Waveforms were taken with color-bar signal and controls set for normal picture. Waveforms marked with an ✻ may vary with signal strength.
5. The Symbol ⚠ indicates a fusible resistor, which protects the circuit from possible short circuits.

SERVICE NOTES:

1. When replacing parts on circuit boards, clamp the lead wires to terminals before soldering.
2. When replacing high wattage resistors on circuit board, keep the resistor body 10 mm (3/8) from circuit board.
3. Keep wires away from high voltage and high temperature components.

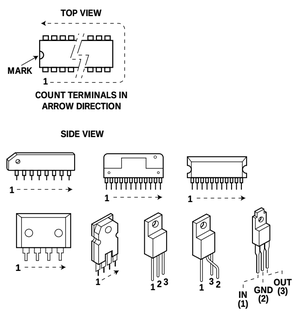
PRODUCT SAFETY NOTICE

THE COMPONENTS DESIGNATED BY A STAR (✻) ON THIS SCHEMATIC DIAGRAM DESIGNATE COMPONENTS WHOSE VALUES ARE OF SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. SHOULD ANY COMPONENT DESIGNATED BY A STAR NEED TO BE REPLACED, USE ONLY THE PART DESIGNATED IN THE PARTS LIST. DO NOT DEVIATE FROM THE RESISTANCE, WATTAGE AND VOLTAGE RATINGS SHOWN.

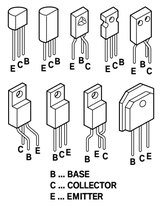
X-RADIATION WARNING NOTE

THIS TV CONTAINS CRITICAL PARTS TO PROTECT AGAINST X-RADIATION. NOMINAL 2ND ANODE VOLTAGE IS 30.0KV AT ZERO BEAM CURRENT AT 120 VOLTS AC LINE, AND MUST NOT EXCEED 32.0KV UNDER ANY OPERATING CONDITION. SEE HIGH VOLTAGE CHECK ON PAGE 16.

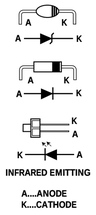
INTEGRATED CIRCUITS



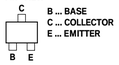
TRANSISTORS



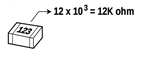
DIODES



CHIP TRANSISTORS



CHIP RESISTORS



CAPACITOR AND RESISTOR CODE CHART

CAPACITOR (Example)

500 C K 1500 B

- Characteristics
- Value code
- Tolerance code
- Material code
- Voltage rating

D	.....	±0.5pF
T	.....	+50% –10%
J	.....	±5%
K	.....	±10%
M	.....	±20%
N	.....	±30%
P	.....	+100% –0%
Z	.....	+80% –20%
C	.....	±0.25pF

C	.....	Ceramic
E	.....	Electrolytic
F	.....	Polyester
N	.....	Polypropylene
T	.....	Tantalum
K	.....	Ceramic
H	.....	MT-Composite
P	.....	NP. Electrolytic
M	.....	MT-Polypropylene

RESISTOR (Example)

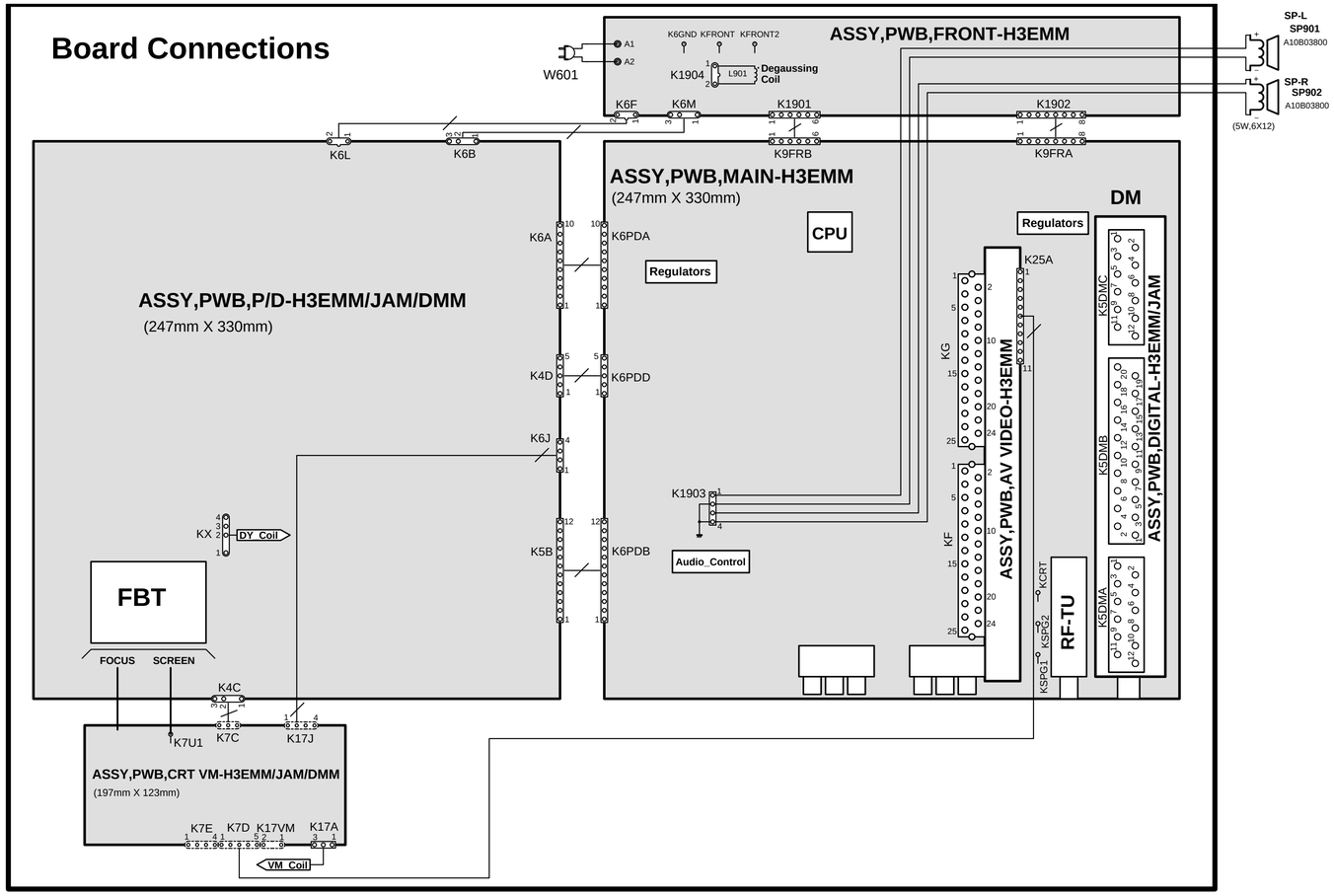
6 Y K 4.7

- Value code
- Tolerance code
- Material code
- Wattage rating

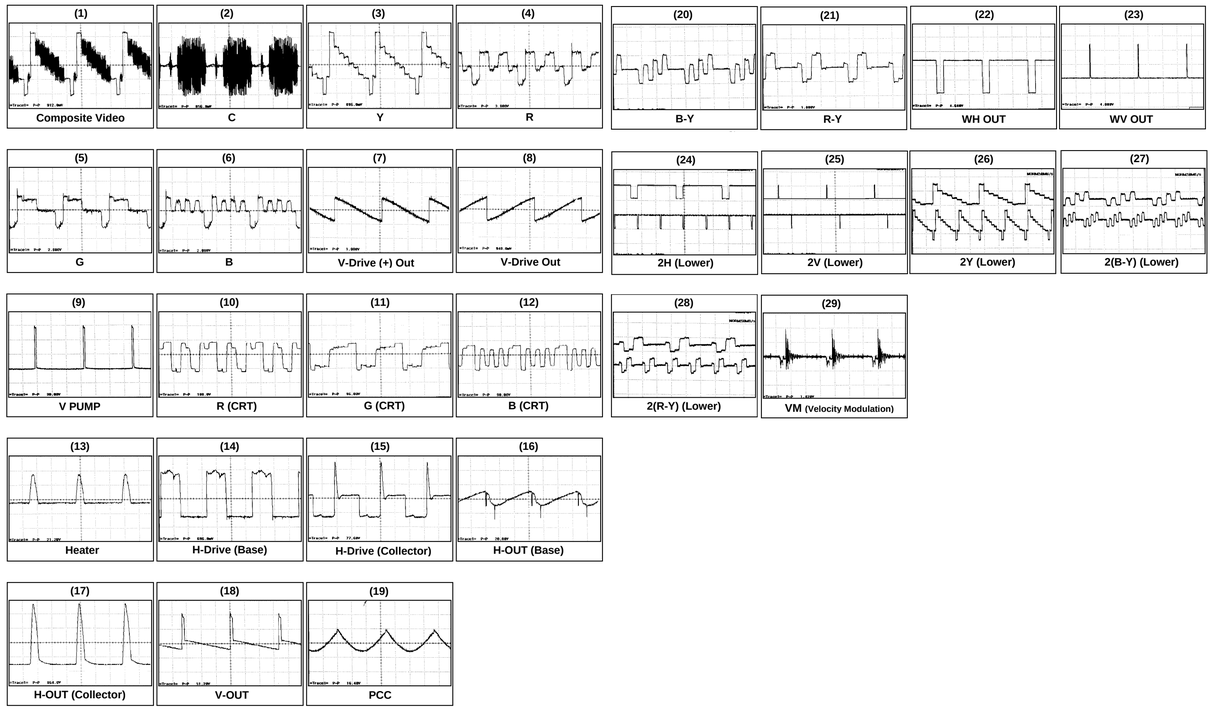
D	.....	±0.5%
F	.....	±1%
G	.....	±2%
J	.....	±5%
K	.....	±10%
M	.....	±20%

F	.....	Fusible
N	.....	Metalized Carbon
S	.....	Oxide Metalized
Y	.....	Wire Wound
C	.....	Solid
D	.....	Carbon Film
W	.....	Wire Wound

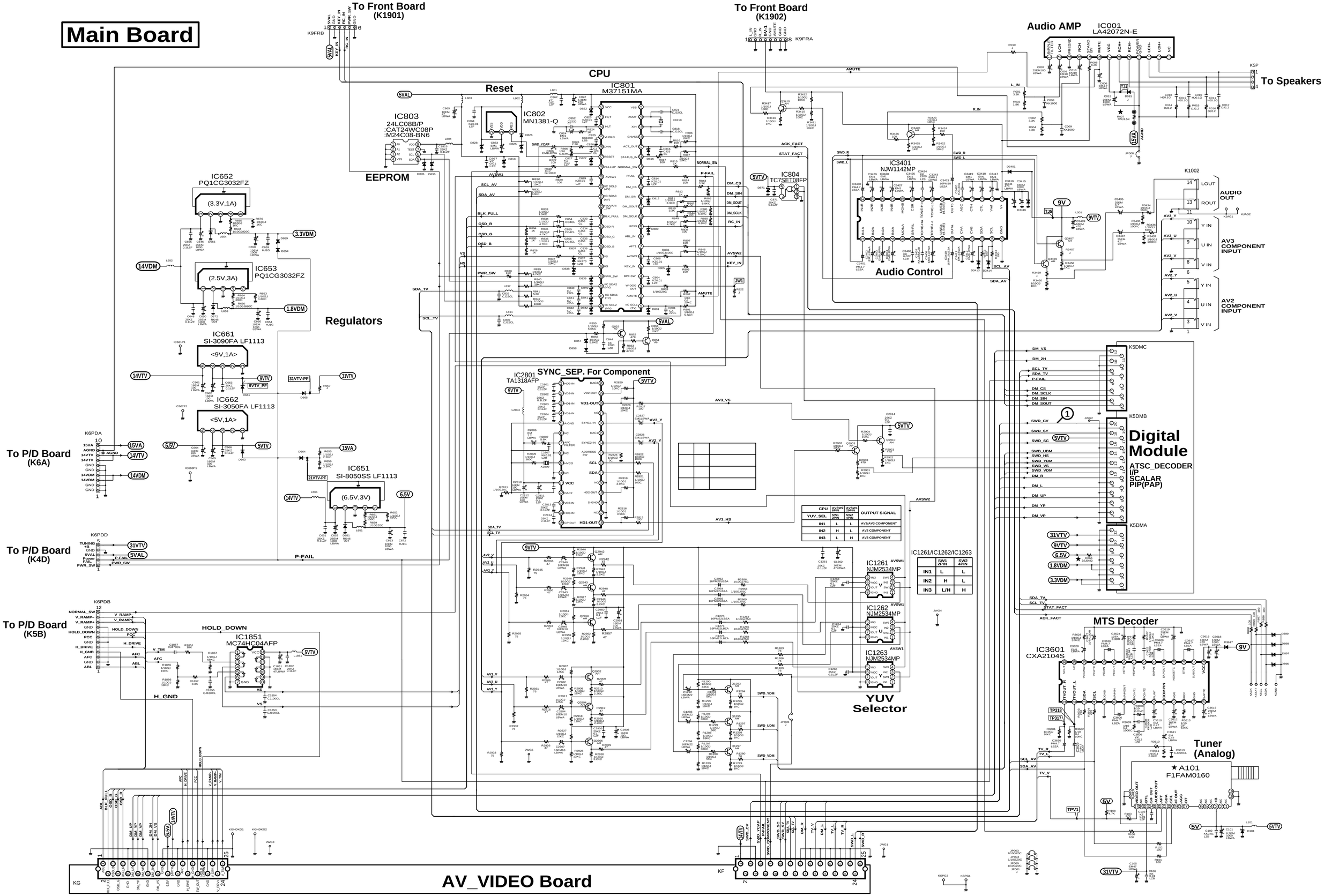
BOARD CONNECTIONS AND LOCATIONS



SCHEMATIC WAVEFORMS

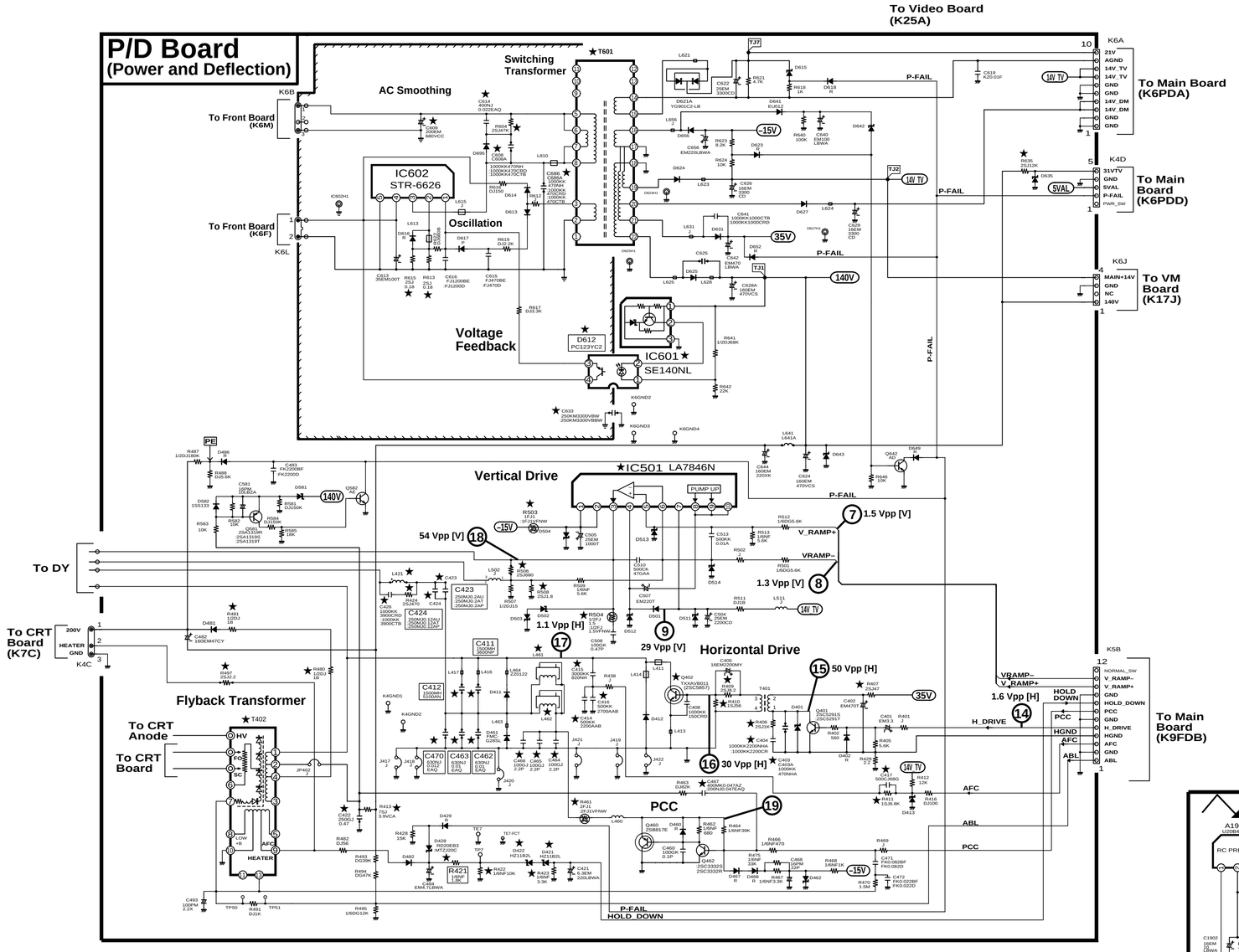


Main Board



CPU	AVSW2 4PIN	AVSW1 2PIN	OUTPUT SIGNAL
YUV_SEL	SW1 2PIN	SW2 4PIN	
IN1	L	L	AV2/AV3 COMPONENT
IN2	H	L	AV2 COMPONENT
IN3	L	H	AV3 COMPONENT

	SW1 2PIN	SW2 4PIN
IN1	L	L
IN2	H	L
IN3	L/H	H



P/D FRONT

LIST OF REPLACEABLE TRANSISTORS

(2SA933S TYPE)

	14TH CODE	2SA933S	2SA1015	2SA564A
AB	7T200181	R	Y,GR	R
AC	7T200182	Q,R	O,Y,GR	Q,R

(2SA1037K CHIP TYPE)

	14TH CODE	2SA1179	2SA1037
AJ	7T200221	M6,M7	R,S

(2SC1740S TYPE)

	14TH CODE	2SC1740S	2SC945A	2SC1815
AD	7T200183	Q,R,S	QA,PA	Y,GR
AE	7QT00202	Q,R,S	RA,QA,PA	O,Y,GR

(2SC2412K CHIP TYPE)

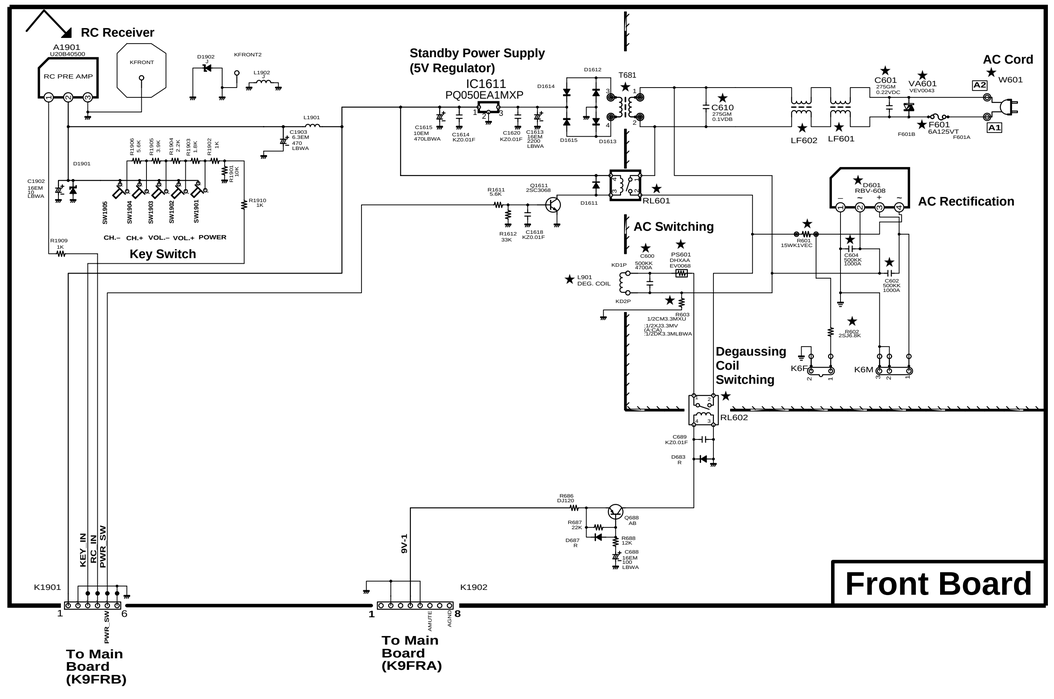
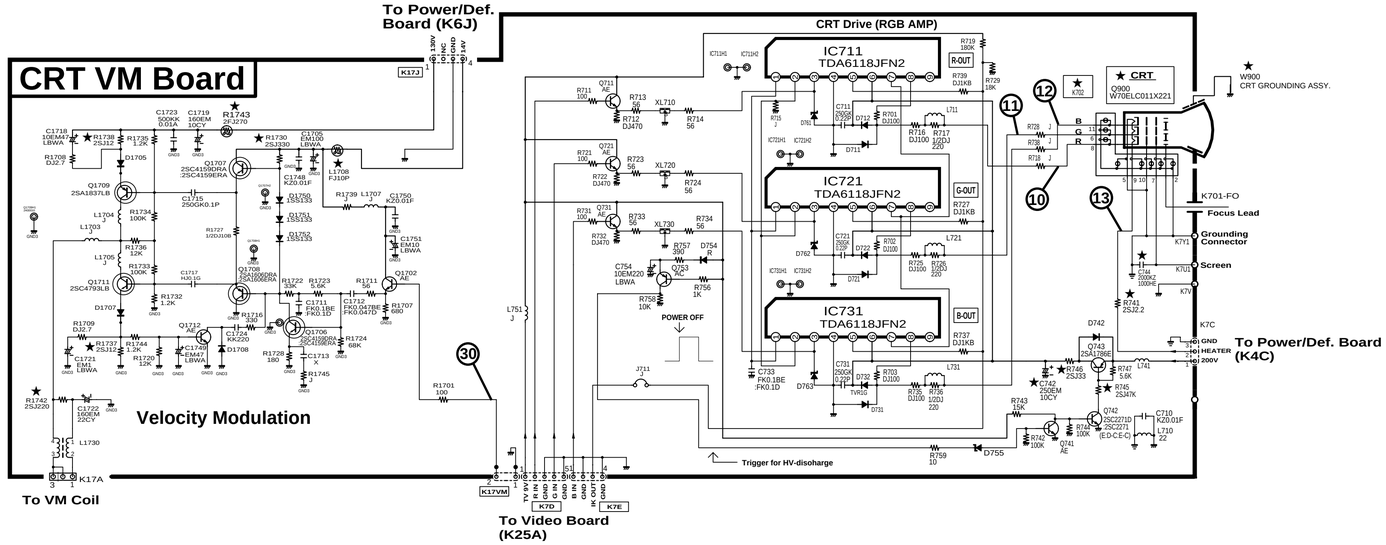
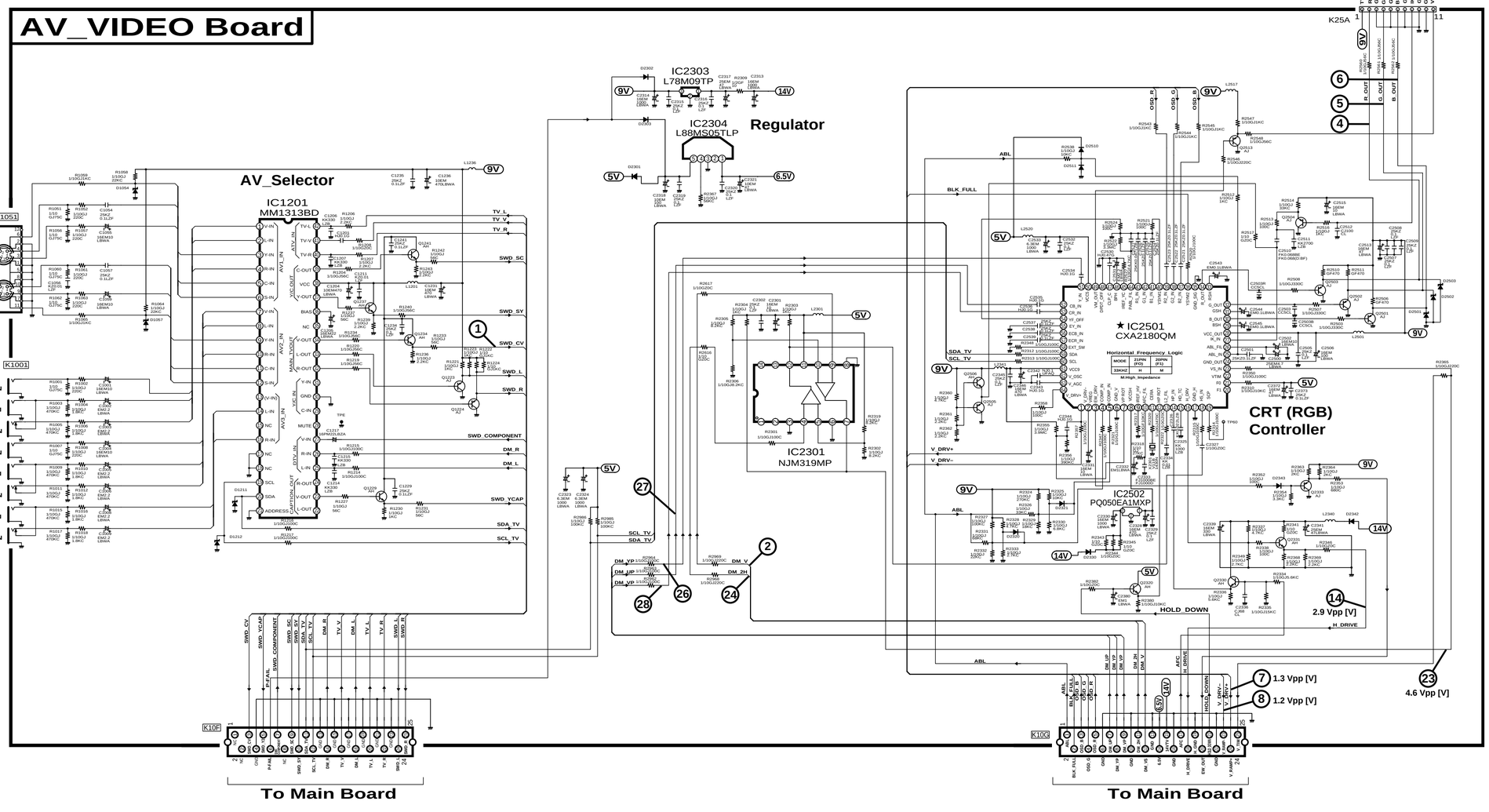
	14TH CODE	2SC2812	2SC2412K
AH	7T200220	L6,L7	R,S

LIST OF REPLACEABLE DIODE

	14TH CODE	DIODE NAME
R	7DD00019	1S1555,1S2473,1S2076,DS442,1N4148
AA	7DD00192	1S1555,1S2473,1S2076,DS442,1N4148 1SS176,1SS133,GMA01
M	7ED00025	1SS176,GMA01,1SS133
P	7DD00021	1S1553,1S2076A,1S2471,1N4148

CAUTION

FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE 6A, 125V FUSE.
ATTENTION: POUR MAINTENIR LA PROTECTION CONTRE LES RISQUES D' INCENDIE UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE 6A, 125V.



AV VIDEO
CRT VM